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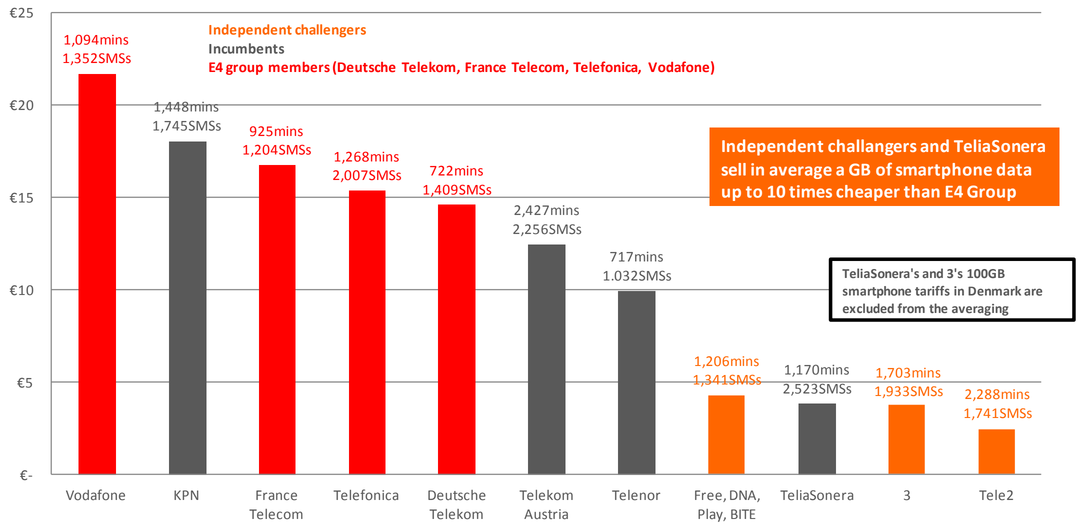
EU27 mobile data cost competitiveness report – May 2013

EU's single telecom market is threatened by the lack of mobile network infrastructure based competition within the national borders of half of EU's member states and from the noticeable absence of pan-European retail operators offering borderless European tariffs.

Average price per GB and average mins&SMSs included in smartphone tariffs
Average includes all smartphone tariffs that met the smallest GB-basket (0.1GB, 100mins, 20SMSs)



Smartphone tariff prices: up to 33x difference in EU27

- While in protected markets telco incumbents charge punitive premiums for mobile data allowances on smartphones, in progressive markets 5-10GB, over thousand voice minutes and SMSs became the standard element of the affordable €10-20 (ARPU level) tariffs.
- In progressive markets (e.g. Estonia, Finland and Austria) a GB of smartphone data volume (including thousands of voice minutes and SMSs) costs on average up to 22 times cheaper than in Greece which is the most expensive market in the EU.
- Independent challengers (e.g. Tele2 and 3) price on average a GB of smartphone data volume (including similar sized voice minute and SMS bundles) up to 10 times cheaper than Vodafone, KPN, France Telecom, Telefonica or Deutsche Telekom.

Smartphone tariff data volume allowances: up to 500x difference in EU27

- Average monthly cellular smartphone data usage has reached 1.5GB and where volume caps allow has exceeded 2GB.
- In progressive markets independent challengers (e.g. Tele2 and 3) offer for the same price 100 to 500 times more data volume than what Vodafone, Deutsche Telekom, France Telecom or Telefonica offer in protected markets.
- In progressive markets, when spending €24 consumers get on average 10 times more (13GB vs 1.3GB) smartphone data volume than in protected markets. On top they also get twice more minutes and SMSs.

Data only tariff volume allowances: up to 100x difference in EU27

- In progressive markets independent challengers (e.g. Tele2 and 3) offer for the same price up to 100 times more data volume than what Deutsche Telekom, France Telecom, Telefonica or Vodafone offer in protected markets.
- In progressive markets (e.g. Estonia, Finland and Denmark) a GB of mobile broadband data volume costs on average up to 14 times cheaper than in the Netherlands which is the most expensive market in the EU for mobile broadband.
- Independent challengers (e.g. Tele2 and 3) price on average a GB of mobile broadband data volume up to 13 times cheaper than KPN, Telefonica, Vodafone, France Telecom or Deutsche Telekom.

Radio spectrum utilisation: over 10x differences between member states

- In almost half of the EU27 member state markets the scarce national radio spectrum resources are used very inefficiently by multinational incumbent telco groups which are keen to protect their legacy fixed broadband assets and cement their European dominance with more consolation at the expense of competition.

Germany: the blueprint of the future consolidated EU single telecoms market? We hope not!

- Should the future EU single telecoms market be tailored to the German template (EU's largest internal market, served by Deutsche Telekom, Vodafone, Telefonica and KPN E-Plus) or rather be simply allowed to evolve to something similar to the Finnish, Swedish, Danish models where none of those four "European Champions" are present and, despite being "sub-scale" internal markets, smartphone tariffs are up to ten times cheaper and radio spectrum utilisation is ten times higher?

Policy recommendations

Introduce competition in EU's 13 protected markets (e.g. Germany, Greece, Hungary, Czech, Belgium)

- Introduce provisions in EU's Regulatory framework for electronic communications that will mandate national regulatory and competition authorities to carry out periodic market analysis and determine the **minimum number of national mobile network operators necessary to foster competition** (e.g. Ofcom analysis and related measures for ensuring 4 viable national wholesalers)

Safeguard competition in EU's 14 progressive markets (e.g. UK, Italy, France, Poland)

- **Block the takeovers of independent challenger operators** (e.g. 3, Free Mobile, Play) by incumbent operators already present in the national market (in-market consolidation).
- **Block the takeovers of independent challenger operators** (e.g. 3, Free Mobile, Play) by other multinational incumbent telco groups who are not present in the country (cross-border consolidation that will increase concentration on European level and severely limit competition on a national level).

Mobile data retail cost transparency & convergence in EU27 member state markets

- The Commission has been tracking in Digital Agenda's Scoreboard the retail cost of voice minutes (average revenue per minute). It should, starting already in 2013, also introduce and **track the retail cost of mobile data** (average revenue per GB of smartphone data); which is one of the most relevant cost competitiveness metrics of the digital economy.
- Protect consumers against deliberately complicated pricing practices and improve retail transparency **by introducing a reference smartphone tariff** that all licensed MNOs in EU27 member states must price and make commercially available (having no VoIP or tethering restrictions).

Inefficient use of scarce national spectrum resources

- The Commission has been tracking in Digital Agenda's Scoreboard the penetration of mobile broadband active users. It should, starting already in 2013, also introduce and track **the mobile data consumption per capita** for member states and **mobile data consumption per customer** for MNOs. Penetration alone is not an adequate metric of digital progressiveness if consumption is systematically severely restricted by the supply side (MNOs).
- Introduce provisions in EU's Regulatory framework for electronic communications that will empower national regulatory authorities **to attach efficient spectrum usage license conditions** (Spectrum hoarding occurs both when an MNO accumulates relatively high amount of spectrum but as well when MNOs are heavily underutilizing their spectrum holdings, see Finnish mobile data consumption per capita which is more than ten times higher than in Germany).

EU single telecom regulator and pan-European spectrum assignments

- Mobile networks (radio sites) are intrinsically local based. Spectrum is a scarce national resource. Mobile wholesale networks are assigned national frequencies along country borders and build local radio access distribution networks. **Competition in the mobile markets is therefore intrinsically confined by the number of licensed wholesale national networks**.
- Assigning spectrum across national borders (pan-European licenses), besides the obvious sovereignty concerns it will raise, it will provide the final blow to competition. These new licenses (e.g. 700MHz) can only end-up in the hands of large multinationals that have the financial scale for such massive acquisitions. **Independent challenger operators**, having lost the right to spectrum, will be pushed down in the value chain, become marginalized site operators and **be forced to open their networks to the multinationals**.
- Democracies are best served by transparent objectives and ambiguous rules rather than by power concentration and structures that favour special interests. EU needs a revised single regulatory electronic communication framework that unambiguously guarantees competition, protects consumers and is strictly enforced by the 27 member state regulatory and competition authorities.

EU single telecom market needs EU borderless tariffs and pan-European retail operators

- European Commission's goal "the difference between roaming and national tariffs to approach zero by 2015" seems truly unattainable as far as smartphone tariffs are concerned. The **reference smartphone tariff** could become an **EU single tariff** by simply requiring that the data, minute and SMS allowances could be freely (no extra charges) used while roaming anywhere in EU.
- EU's single telecom needs **pan-European retail operators that offer borderless tariffs**. Why there are none today? Clearly the multinational incumbent telco groups have no incentive to end the roaming feast or offer Austrian level prices to Germans (T-Mobile Austria charges €17 while T-Mobile Germany charges €96 for the same smartphone tariff allowances).
- But why there are no MVNOs that offer such service? It is technically possible and could be financially lucrative for an MVNO to offer a borderless EU tariff. One possible explanation is that MVNOs could be **contractually prohibited to use local wholesale agreements to connect roamers or citizens from other member states** (a Dutch that works in Belgium). Such practice runs against EU's single market rules and should be banned.

Disclosures

The comparative analysis carried out by Rewheel Ltd. during the second quarter of 2013, solely on its own initiative, does not constitute an investment, legal or tax advice and is not intended in any way to give any direct or indirect recommendations regarding current or future stock transactions that any party might undertake after reading this report. Rewheel Ltd. and/or its affiliates, and their respective officers, directors and employees accept no liability whatsoever for any direct, indirect or consequential loss arising from their use of this report or its content. The authors of the report make no buy, sell or hold recommendations regarding the stock of the companies covered in this report. Rewheel Ltd. is not a certified financial advisory and is not currently regulated by any financial investment authority. The viewers of this report should consider this publication as only a single factor in making business, regulatory or competition enforcement decisions.

This report does not make, imply or suggest direct or indirect claims of unlawful anti-competitive actions undertaken from any of the mobile network operators or operator groups covered herein. The non-competitive practices that our analyses exposed are based solely on our views on what market behaviors promote rather than demote competition. The term non-competitive practices shall not be associated, interpreted or confused with unlawful anti-competitive actions under national and European competition law.

The data used in this comparative analysis are based solely on public information posted on mobile network operator websites. We believe the tariff information posted on mobile network operator web sites to be reliable but no representation is made by us that the row data used are complete, accurate, fully representative, fully fit for purpose, or were up to date at the time of collection. The data collection team made subjective judgments when translating, interpreting and screening for tariff interdependencies in the mobile network operator web sites. Such subjective interpretations and judgments of tariff conditions, Google translations and of our qualification rules were the sole discretion of the data collection team and of the report authors. Rewheel Ltd. accepts no liability for omissions, errors or simply for not being able to discover on the mobile network operator website a tariff with lower price that met the qualification criteria. We welcome feedback and suggestions from mobile network operators for existing or newly launched tariffs that meet our qualification criteria and which were not considered in our analysis. The findings, conclusions and correlations that the authors of this comparative analysis have reached are solely attributable to their subjective interpretations of Google translations, tariff conditions, qualification rule interpretations and mobile network operator classification & clustering rules.

Report contents

1 Executive summary – mobile data cost competeviness and social-economic development in EU member states

For the traditional industries the cost of energy …

Battered by the financial crisis, high indebtedness levels and the gradual loss of competitiveness Europe's economies have entered what many economists believe a prolonged period of stagnation. According to the draft guidelines for the March 2013 summit conclusions[1] the EU heads of state intended to focus on "key aspects" of energy policy aimed at boosting growth, productivity and employment to help overcome the effects of the economic crisis. The EU heads were scheduled to meet and discuss how to lower energy prices and so improve the Union's industrial competitiveness during an energy summit on the 22nd of May. In the draft document particular emphasis was given on tackling "High energy prices and costs that hamper European competitiveness". While the Council was focusing on key aspects of energy policy, the European Commission is busy safeguarding a level playing field so big businesses do not abuse their position of power. On the 14th of May 2013 Europe's antitrust authority said it was investigating major multinational oil companies (Shell, BP and Statoil) over suspected anti-competitive agreements and price manipulation[2].

… for the digital economy the cost of mobile data

While Europe's economy is stagnating, the digital arm of the economy is growing at seven times the rate of the rest of the economy[3]. According to the Digital Agenda Commissioner, Mrs. Neelie Kroes "Europe is now profiting from a consistent, long-term policy put in place by national regulators: low prices, more transparency and more competitiveness"[4]. However, as the Digital Score Board metrics show there are stark differences between the state and growth of digital economies among the EU27 member states. The winners are the Nordics, UK and Austria where strong local national regulatory oversight and competition enforcement is driving price competition, penetration, cost competitiveness and growth. On the other side of the wall in EU's many protected national markets multinational incumbent telco groups heavily lobby for more consolidation and are threatening with an investment embargo in a desperate attempt to resist change and protect their inherited oligopolistic high profit margins.

[1] http://www.euractiv.com/energy/eu-leaders-sqare-circle-cheap-en-news-519606

[2] http://uk.reuters.com/article/2013/05/14/uk-statoil-inspection-idUKBRE94D0N320130514

[3] http://europa.eu/rapid/press-release_IP-12-1389_en.htm

[4] http://www.dutchnews.nl/columns/2013/05/neelie_kroes_27_keys_to_open_o.php

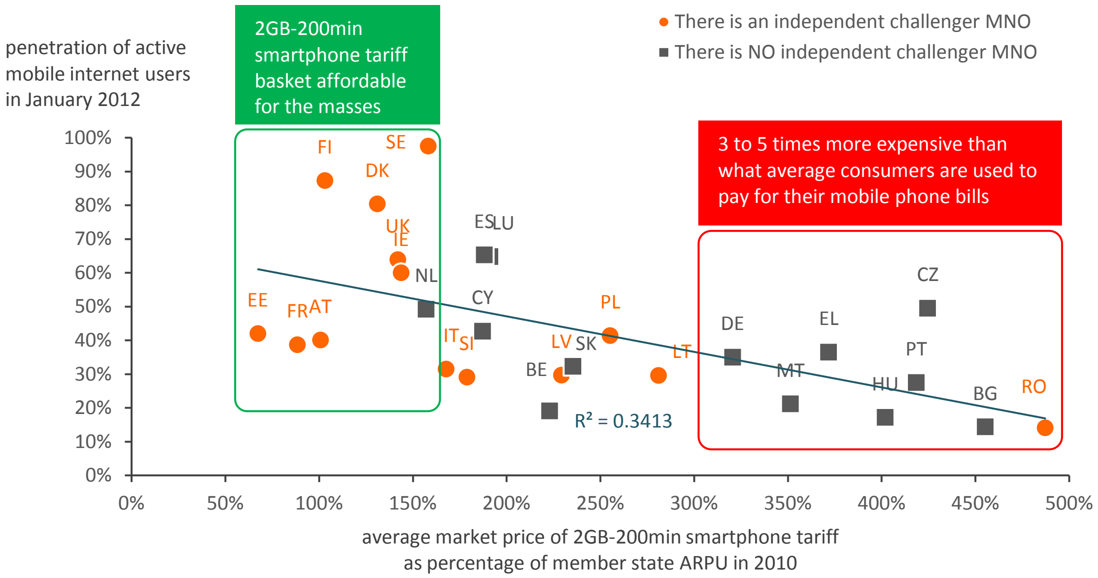
As energy cost is a key aspect of industrial competitiveness, communication (particularly mobile data) cost is a key aspect to digital competitiveness. Digital competitiveness in the form of affordable mobile internet access connections drives the adoption of digital applications, cloud computing, internet of mobile things, e-learning, e-heath and online trade that underpin economic growth.

Smartphones, thanks to their innovative user interfaces enabling instant and seamless internet access became the primary personal vehicles of the digital economy. Their increasingly affordable prices (now sub €100), also carry the potential to bridge the digital divide between the wealthier urbanized societies and the poorer, more rural societies of EU's newest member states. But only, if mobile network operators, entrusted with the exploitation of the member states' scarce and highly valuable national radio spectrum resources, offer consumers and businesses the choice of affordable, competitively priced smartphone tariff plans.

Earlier Rewheel research: alarming price differences revealed

Our earlier research[5], published in January 2013, revealed alarming, ten times, differences in the absolute price level and affordability of one particular consumer smartphone tariff basket (2GB and 200 minutes per month) across the EU27 member states. Moreover, our analysis showed that in the affected member states high prices were already suppressing mobile internet adoption, as shown in Exhibit 1 below.

Exhibit 1 Mobile internet penetration tends to be significantly higher in those member states where sufficient data volume is included in affordable (ARPU-level) smartphone tariff plans

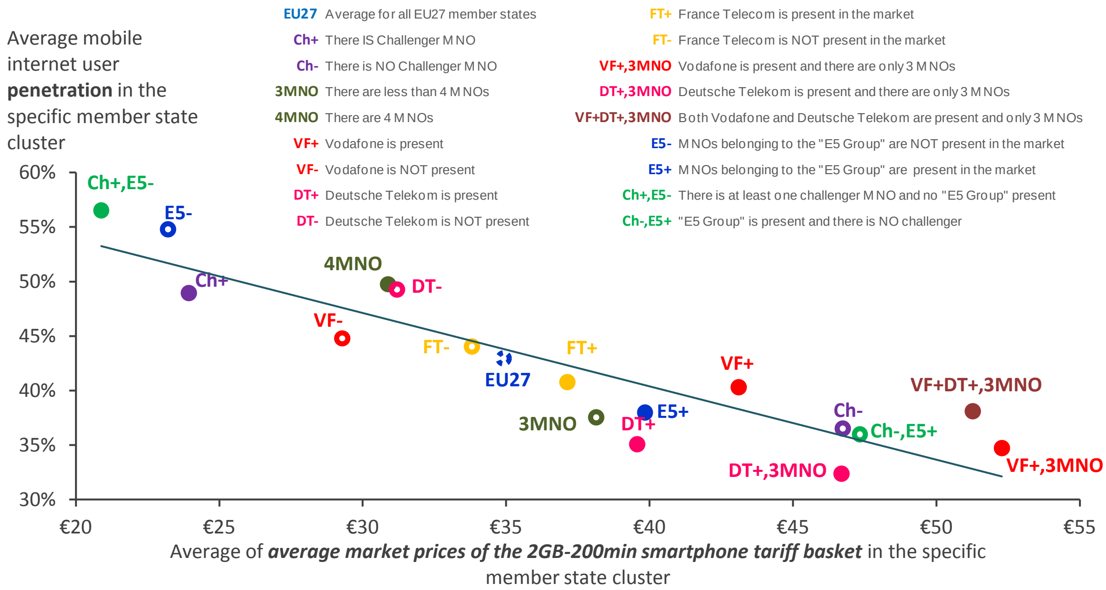


[5] http://rewheel.fi/insights_14.php

Source: Rewheel EU27 smartphone tariff competitiveness report – January 2013

Furthermore, we have shown (see Exhibit 2 below) that the single most influential factor behind high prices and low mobile internet penetration was the market dominance of large multinational incumbent telco groups.

Exhibit 2 The prices of 2GB-200min smartphone tariffs tend to be the lowest and mobile internet penetration the highest where none of the five European incumbent telcos are present



Source: Rewheel EU27 smartphone tariff competitiveness report – December 2012

Having strong financial dependency on historically high margin voice and SMS revenues and vested interest in protecting fixed broadband infrastructure assets, incumbent multinational groups are unwilling to drive the mass adoption of mobile internet access by offering affordable tariffs if that means that they will have to endure a profit margin hit. So they resort to defensive non-competitive strategies aimed at protecting their markets territories from independent challenger mobile only operators. Independent challenger mobile only operators, having no significant economies of scale, have pushed data cost competitiveness to new heights by most efficiently utilizing HSPA+, LTE, small cells and lean overheads. Their ability to offer profitably and reliably tens of gigabytes for single digit Euros per month is raising serious doubts about the necessity of private or state subsidized fixed broadband investments.

Competition concerns?

Our January 2013 report findings raised concerns among many national regulatory and competition authorities and among the EU Commission's Telecom Antitrust Unit. Mr. Joaquín Almunia, EU's Vice President of the European Commission responsible for Competition Policy, cited our research, warning that "users pay up to ten times more to use their smartphones in those member states where there is no challenger to the big European operators"[6]. During the first half of 2013 we held many workshops with national regulatory and competition authorities and we presented and elaborated our findings and recommendations to the DG Competition and DG Connect units of the European Commission in February 2013.

New, comprehensive Rewheel research: reconfirmed earlier findings, exposed further non-competitive practices

The aim of our new comprehensive follow up research, carried out during the second quarter of 2013, was to widen our analysis and collect additional market information that will further strengthen and support our list of recommended policy actions. We have expanded our analysis in three fronts;

- We have now defined and analysed six smartphone usage baskets to cover all usage profiles from entry level to heavy user
- We introduced and analysed five new "Euro baskets", i.e. how much smartphone data volume allowance one can get for a specific price (and how many minutes and SMSs are also built within)
- We have included and separately analysed data only tariffs i.e. MBB, tablet, iPad tarrifs

The outcome of this new comprehensive analysis has fully reconfirmed our earlier disturbing findings of very high prices that are prevalent in protected markets dominated by multinational telco groups and as well exposed further non-competitive market practices such as the inefficient use of allocated spectrum. **EU's single telecom market is threatened by the lack of mobile network infrastructure based competition within the national borders of half of EU's member states and from the noticeable absence of pan-European retail operators offering borderless European tariffs.**

By far the most disturbing finding of our analysis is that certain local mobile operators which belong to multinational telco groups are unwilling to drive mobile data competition in protected markets (i.e. have the highest prices and smallest data allowances) even though; they have the lowest market share in the local mobile market, they have no fixed broadband business in the local market, they have been losing market share in mobile data, their spectrum utilization is low, their traffic is very low and stagnant for years while they have modernized their network and while they are enforcing the heaviest anti-neutrality rules in the market. There is no business logic behind such irrationally weak competitive behaviours (with the exception of the incompetence of local management and no group oversight). Perhaps one needs to look *beyond* the local market and into the EU-wide operational

[6] http://europa.eu/rapid/press-release_SPEECH-13-168_en.htm

footprint of multinational incumbent telco groups to find a business rational explanation for such non-competitive practices which may not only be confined in protecting prices but may also extend to coordinating positions[7] ahead of radio spectrum auctions (see Section 10, focused at Germany).

We addressed our concerns regarding this very disturbing finding to officials from DG Competition Telecom Antitrust Unit and DG Connect at the workshop we held during February 2013 and disclosed the content of our workshop presentation into the public domain.[8]

We decided to widen our analysis and release, this time, all the findings and recommendations to the public domain. Our decision was triggered by the warm reception that our January 2013 report received and by responding to a request we received from EU's Telecom Antitrust officials to release our findings into the public domain as soon as possible.

[7] http://www.telecompaper.com/news/german-watchdog-probes-mobile-firms-over-frequencies-info--941585

[8]http://rewheel.fi/downloads/Rewheel_smartphone_tariff_competitiveness_2012_report_supplement_PUBLIC.pdf

2 Methodology

2.1 Mobile data cost competitiveness in EU27 member states

The primary aim of this comprehensive comparative follow up research analysis conducted by Rewheel during the second quarter of 2013 was to benchmark the mobile data cost competitiveness in EU27 member states. Having established the mobile data retail cost level in smartphones and data only tariffs for a variety of GB and € baskets we will set out to assess and expose the underlining non-competitive practices and market drivers that are causing huge cost disparities on an MNO level, MNO group level and member state level.

2.2 Mobile Network Operators

The scope of our comprehensive comparative analysis covered MNOs holding a national mobile license in the 800, 900, 1800, 2100 MHz frequency bands in the EU27 member states according to GSMA list[9] that have launched commercial service and had tariffs on their web sites. MNOs with only 2600 MHz, CDMA or WiMAX license were excluded from the analysis. 91 MNOs in total were included in the analysis. We have excluded from the analysis Orange Austria which was acquired by H3G Austria and Tele2 Netherlands. Tele2 Netherlands has not launched a commercial service with its own frequencies at the time we collected the tariff data.

Mobile Virtual Network Operator (MVNO) tariffs or plans have been excluded from this release of our EU27 mobile data cost competitiveness report. According to our field experience from many European markets gained during the last three years, MVNOs are still confronted by substantial barriers of entry often erected by MNOs which are closely guarding mobile margins. In the voice centric era, a competitive pure bulk wholesale volume (€/min) based deal was all an MVNO needed to compete head to head with MNOs. However, in the mobile data era where capacity is "king", a competitive bulk wholesale volume based deal (€/GB) could still leave an MVNO with a major retail handicap. Unless MVNOs get partial direct access to MNOs spectrum/network capacities (i.e. a capacity based wholesale rather than volume based) they will not be able to fulfill their role and stimulate competition in the data/smartphone centric mobile markets. We interpret the pre-conditions set out most recently by EU Competition Commission for the approval of Orange Austria[10] takeover by H3G Austria a step towards the right direction: among the concessions agreed by H3G Austria was the

[9] Source: GSMA http://maps.mobileworldlive.com/

[10] http://europa.eu/rapid/press-release_IP-12-1361_en.htm

commitment to provide on agreed terms wholesale access to its network for up to 30 percent of its capacity to up to 16 MVNOs in the coming 10 years.

2.3 Smartphone tariff GB-baskets

In our January 2013 smartphone tariff competitiveness report we targeted a basket with a minimum of 2GB data allowance and 200 off-net minutes to all national mobile and fixed networks. We selected the minimum monthly data volume allowance with the aim to get an allowance that can accommodate the working needs (email) and entertainment needs (browsing, Facebook, Youtube) of the majority of mainstream active "normal" smartphone users, that most typically are using i-OS, Android or Windows 8 operating systems. We further provided a numbers of references whereby MNOs, national regulatory authorities and research firms reported in the US and in some progressive EU markets average smartphone monthly data usage ranging from 0.7 to 2GB.

We would like to add to those references a research published by Informa Telecoms & Media and Mobidia[11] in late 2012 that presented the global average cellular smartphone data monthly usage figures. The overall sample analyzed consisted of more than 100,000 users globally and the data were collected during May 2012. The global average monthly cellular data usage was 1.5GB and 2.1GB respectively for smartphone users that were on >1GB and unlimited data allowance packages. In the UK the figures were 2.1GB and 1.9GB respectively for smartphone users that were on >1GB and unlimited data allowance packages.

In the fourth quarter of 2012 and during the first half of 2013 a number of European MNOs launched a wave of new smartphone tariffs with unlimited voice and SMS allowances. These new family of tariffs reflect a new era in the mobile industry whereby voice and SMS is commoditized and could be easily substituted by popular over the top applications such Skype and WhatsApp. The main price differentiator in these new unlimited voice and SMS family of tariffs is the data allowance built in. Most recently a number of MNOs have introduced more generous GB allowances in their high end tariffs (i.e. 5-10GB) to accommodate the steep increase in average monthly usage reported by Informa Telecoms & Media. We feel vindicated for our choice of 2GB in our January 2013 report. MNOs that were quick to criticize the allowance as excessive have two months later launched tariffs with 5GB or 10GB allowances.

In addition to the 2GB basket we have defined and will be using in our analysis five more GB baskets presented below.

[11] Source: http://www.informatandm.com/wp-content/uploads/2012/08/Mobidia_final.pdf

- **0.1GB-basket**: Includes as a minimum 0.1GB of mobile data, 100 off-net minutes to all national mobile and fixed networks and 20 SMSs to all national mobile networks
- **0.5GB-basket**: Includes as a minimum 0.5GB of mobile data, 100 off-net minutes to all national mobile and fixed networks and 20 SMSs to all national mobile networks
- **1GB-basket**: Includes as a minimum 1GB of mobile data, 100 off-net minutes to all national mobile and fixed networks and 20 SMSs to all national mobile networks
- **2GB-basket**: Includes as a minimum 2GB of mobile data, 200 off-net minutes to all national mobile and fixed networks and 20 SMSs to all national mobile networks
- **3GB-basket**: Includes as a minimum 2GB of mobile data, 500 off-net minutes to all national mobile and fixed networks and 20 SMSs to all national mobile networks
- **4GB-basket**: Includes as a minimum 2GB of mobile data, 1,000 off-net minutes to all national mobile and fixed networks and 20 SMSs to all national mobile networks

The 2GB-basket used in our analysis herein also included 20 SMSs. So the charts presenting the 2G-basket while quite similar are not identical to the charts presented in our January 2013 report. The differences are attributed both to the addition of the 20 SMSs and as well new tariffs with lower prices launched by MNOs during 2013.

2.4 Smartphone tariff €-baskets

The primary aim of the GB-basket comparison is to expose price differences of comparable items for a variety of low, mid-range and high usage profiles. However, usage basket profiles fail to accurately capture the value (GBs, minutes and SMSs) that consumers receive when spending a certain amount of money. For example in Austria consumers can purchase 2GB, 1,000 minutes and 1,000 SMSs for as little as €10. In more than ten member states a consumer will need to spend more than €15 to purchase the smallest GB-basket of 0.1GB, 100 minutes and 20 SMSs. Therefore we defined and present below five € baskets with the aim of capturing the value for money that consumers received from MNOs, MNO groups and by the MNOs present in a member state.

- **€10-basket**: Lowest price smartphone tariff per MNO with the highest GB allowance which includes a minimum of 100 minutes and 20 SMSs and having a price of equal or less than €10.
- **€20-basket**: Lowest price smartphone tariff per MNO with the highest GB allowance which includes a minimum of 100 minutes and 20 SMSs and having a price of equal or less than €20.

- **€30-basket**: Lowest price smartphone tariff per MNO with the highest GB allowance which includes a minimum of 100 minutes and 20 SMSs and having a price of equal or less than €30.
- **€40-basket**: Lowest price smartphone tariff per MNO with the highest GB allowance which includes a minimum of 100 minutes and 20 SMSs and having a price of equal or less than €40.
- **€100-basket**: Lowest price smartphone tariff per MNO with the highest GB allowance which includes a minimum of 100 minutes and 20 SMSs and having a price of equal or less than €100.

When we applied the €-baskets on an MNO Group level or member state level we selected the tariff with the highest minutes if there were two tariffs with the same price and same GB allowances available by different MNOs.

2.5 Data only tariff GB-baskets

For data only mobile broadband (MBB), tablet and iPad tariffs we defined the following GB baskets.

- **5GB-basket**: Includes as a minimum 5GB of mobile data
- **10GB-basket**: Includes as a minimum 10GB of mobile data
- **20GB-basket**: Includes as a minimum 20GB of mobile data

We were surprised to see that a few MNOs are still offering data only tariffs with allowances that are smaller than 1GB. On the positive side, as the data will show, many MNOs without fixed broadband interests have flooded the market with affordable substitutive offers of +50GB, starting from as low as €10 a month, and for €20-30 offering LTE speeds too.

2.6 Detailed qualification rules for smartphone tariffs

Below we present the detailed rules we applied in screening and selecting the qualified tariffs for each MNO.

We looked for the lowest price, consumer, post-paid, SIM only, promotional, integrated smartphone tariff that included as a minimum 0.1GB of mobile data, 100 off-net minutes to all national mobile and fixed networks and 20 SMSs to all national mobile networks.

- “lowest price” means a tariff that fulfills all other conditions and has the lowest price
- “consumer” means not a business tariff or special tariff such as youth-only, senior-only, i-phone-only, with phone subsidy-only, etc.

- "post-paid": implies prepaid offerings were excluded but rolling postpaid contracts were considered in the analysis

- "SIM-only": some MNOs were offering a tariff in discounted price if the subscriber opted out and did not purchase a new subsidized smartphone. In the event an MNO offered a GB allowance defined in one of our six GB-baskets only with a subsidized handset and not on a SIM-only basis we registered that tariff as the tariff with the lowest price. This was necessary because some MNOs, in a clearly protective tactic, only offer the high GB allowances on high-end expensive tariffs that included a handset subsidy.

- "promotional" means promotional offers for limited time of period (Christmas offer, etc). We calculated the blended monthly fee for the contract duration in cases the promotion was offering a discount for the few months after the customer has signed up.

- "integrated" means a tariff that includes both a minimum of GB of data volume at minimum 1Mbps speed and a minimum off-net minute and SMS allowance.

When we were trying to select the tariff with the lowest price that met a certain GB-basket we often had to add to an existing tariff an optional add-on of GBs, minutes or SMSs. This operation was quite often necessary because the GB, minute or SMS steps of the next available off-the-shelf tariff were much higher and the price was more expensive than taking a cheaper tariff and adding for example 1GB of additional monthly data allowance.

In doing so we only considered add-ons with a rolling monthly nature whereby the consumer had to activate the optional add-on just once rather than having to do that on a monthly basis. Add-ons ("refills") that need reoccurring manual monthly reactivation by the consumers as soon as the GB allowance has been depleted have been explicitly excluded. Besides being non-consumer friendly we could not understand the business logic of such one-time activations if they were not also offered on a rolling basis. It appears that certain MNOs that only offer smartphone data add-ons on a non-rolling basis attempt to de-incentivize the use of additional data even though such use would lead to additional tariff charges and company revenue. The only business rational explanation for such non-competitive practice is that the MNO is actively forcing the consumers to binding 2-year contracts by purchasing a much more expensive tariff with handset subsidy and a sufficient GB allowance.

Finally where the terms and conditions were readily available on the MNO web site we logged in the database tariff usage restrictions such as VoIP and tethering. Certain E4 multinational incumbent telco groups are imposing such restrictions on a wide range of their tariffs. In many cases such restrictions are not fully explained on the website, but are hidden somewhere deep in the general terms and conditions documents. The deep inspection of such documents was beyond the scope of our investigation, therefore our database does not contain an exhaustive list of MNOs with such terms.

2.7 Detailed qualification rules for data only tariffs

The detailed rules for the qualification of data only tariffs were quite straightforward. We included MNOs’ available tariffs classified into MBB, tablet and iPad categories. We registered the GB allowance limits, speed limitations, LTE availability and usage restrictions such as VoIP and tethering.

2.8 Treatment of tariffs with unlimited data, minute and SMS volumes

A number of MNOs offer smartphone tariffs with unlimited data, minute or SMS volumes and as well data only tariffs with unlimited data volume. During the analysis we performed a number of averaging operations and therefore we had to assign finite volumes to these unlimited offerings.

In assigning the finite volumes for the unlimited parts of a tariff we observed the following rules.

- Smartphone tariff unlimited data volume: we assigned 10GB to tariffs offering “truly” unlimited data volume. For tariffs that were marketed as unlimited but had a fair usage policy we used the volume cap defined in the fair usage. In Finland and Estonia where we assigned 10GB volume to tariffs with unlimited data volumes other MNOs offered much higher (15GB-50GB) volume capped data for smartphones. In the UK where we also assigned 10GB to tariffs with unlimited data volumes other MNOs offered up to 8GB data volume in their smartphone offers. In Romania where we also assigned 10GB to tariffs with unlimited data volumes other MNOs offered up to 4GB data volume in their smartphone offers but consumers had the possibility to consume 10GB by paying overage charges (e.g. €1/100MB) when exceeded the 4GB.

- Smartphone tariff unlimited minute volume: we assigned the volume cap mentioned in the fair usage policy if such information was available or the highest volume included in a smartphone tariff by any other MNO in the same market. E.g. if the fair usage policy had a cap of 2,000 minutes then we assigned 2,000 minutes to the unlimited offering. If there was no fair usage policy but another MNO in the market offered a tariff with 1,500 minutes then we assigned 1,500 minutes to the tariff with the unlimited minute volume. If there was no MNO that offered a tariff that had more than 1,000 minutes then we assigned 1,000 minutes to tariffs with unlimited volume.

- Smartphone tariff unlimited SMS volume: identical rules with unlimited minutes

- Tablet and iPad tarrif unlimited data volume: we assigned a 10GB volume to tablet and iPad tariffs with unlimited volume.

- MBB tariff with unlimited data volume: we assigned 30GB to tariffs offering "truly" unlimited data volume. For tariffs that were marketed as unlimited but had a fair usage policy we used the volume cap defined in the fair usage. In Austria, Finland, Estonia and Lithuania where we assigned 30GB volume to tariffs with unlimited data volumes other MNOs offered at least 30GB or higher volumes on their MBB tariffs. In Latvia where we also assigned 30GB to tariffs with unlimited data volumes other MNOs offered tariffs with up to 25GB data volume.

2.9 Data collected from MNO websites

The data were collected directly from the MNO web sites during the second quarter of 2013. The date of entry for each tariff was registered as well as the weblinks to the MNO website. The tariffs were collected between the 27th of March 2013 and the 21st of May 2013. Our data collection team could read and understand English, Finnish, Swedish, French, Greek and Hungarian. For the remaining MNO web sites which were not available in any of these six languages the team used the automatic translation function of Google. The data collection team has taken screen shots from every single MNO tariff that was used in the comparative analysis. The name of each MNO tariff which was included in the analysis can be found in Annex 1. In total we screened thousands MNO tariffs and registered in our database 771.

3 MNO group and member state market classification rules

3.1 MNO group classification rules

We have classified MNOs to three distinct (mutually exclusive) group categories:

- E4 group members
- Incumbents
- Independent challengers

All MNOs belonging to the Deutsche Telekom Group, France Telecom Group, Vodafone Group, and Telefonica Group have been classified as E4 group members.

Any MNO, not belonging to the E4 group and fulfilling any of the below listed criteria has been classified as “Incumbent”:

- It is the no.1 MNO in terms of subscription market share in any of the EU27 member states
- If it is part of a group then there is at least one MNO in the group that holds a no.1 position in terms of subscription market share in any member state
- If the owner of the MNO is an incumbent fixed operator or a *minority* shareholder in an incumbent group
- If during the year that preceded the tracking period (calendar year 2013) merger talks had been held with an incumbent MNO (e.g. WIND Hellas merger talks with Vodafone GR)

All the rest of the MNOs that have not been classified as either an E4 group member or as an incumbent have been classified as independent challenger operators.

3.2 Member state market classification rules

We have classified a member state market as **progressive** if there was at least one independent challenger MNO present. Member states where there were no independent challenger MNOs but only E4 group and incumbent MNOs present have been labeled as **protected** markets.

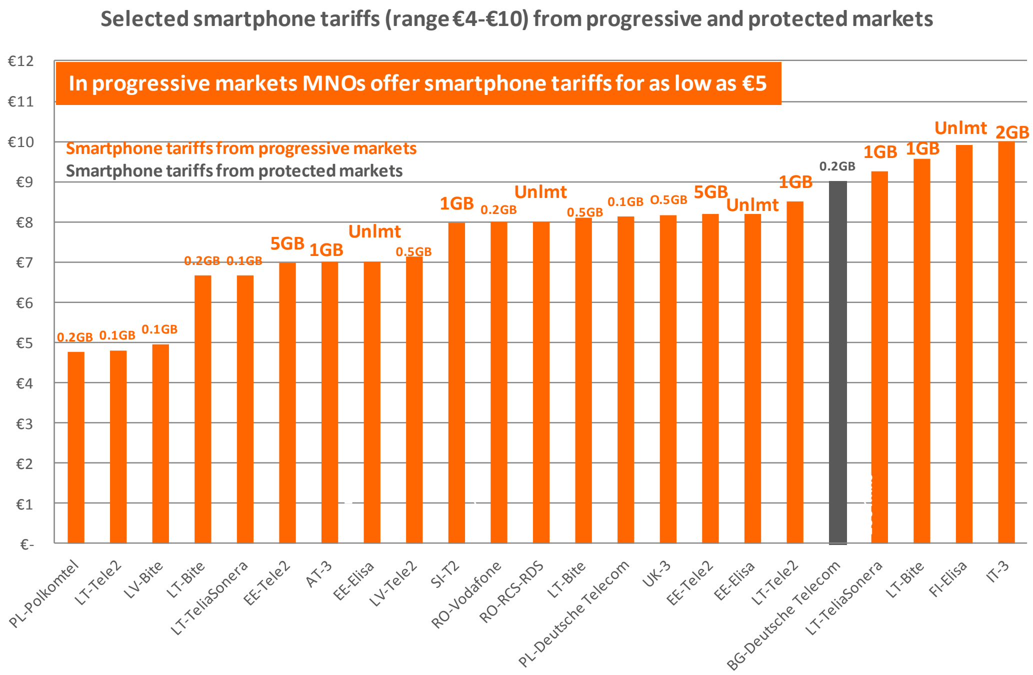
4 Sub €10, ARPU-level and unlimited data smartphone tariffs

E4 group (Vodafone, Deutsche Telekom, France Telecom, Telefonica) members and other incumbents with vested interest in protecting and further strengthening their dominance in fixed broadband networks have cultivated the belief that mobile data is expensive and can only be offered to complement fixed offerings. They have labeled independent challenger operators as “mavericks” and their mobile data offerings as “unsustainable”. Our analysis of the mobile data cost competitiveness across the EU27 member states discredits this notion. Incumbents that are mainly operating in progressive markets have joined independent challengers in the race of efficiently “producing” and retailing mobile data. In this section we provide a prelude of the stark contrast in smartphone tariff pricing and value for money (i.e. amount of data offered). We do that by using selected tariffs from independent challengers, incumbents and E4 group members, operating in progressive markets and protected markets.

4.1 Sub €10 selected smartphone tariffs in EU27

In Exhibit 3 below we present selected sub €10 smartphone tariffs from progressive and protected markets. The list of progressive member states where operators offer sub €10 smartphone tariffs includes both high ARPU member states such as Finland, Austria, UK, Italy, Slovenia and low ARPU member states such as Poland, Latvia, Lithuania and Romania.

Exhibit 3 Selected sub €10 smartphone tariffs from progressive and protected markets | MNO view



Source: Rewheel analysis

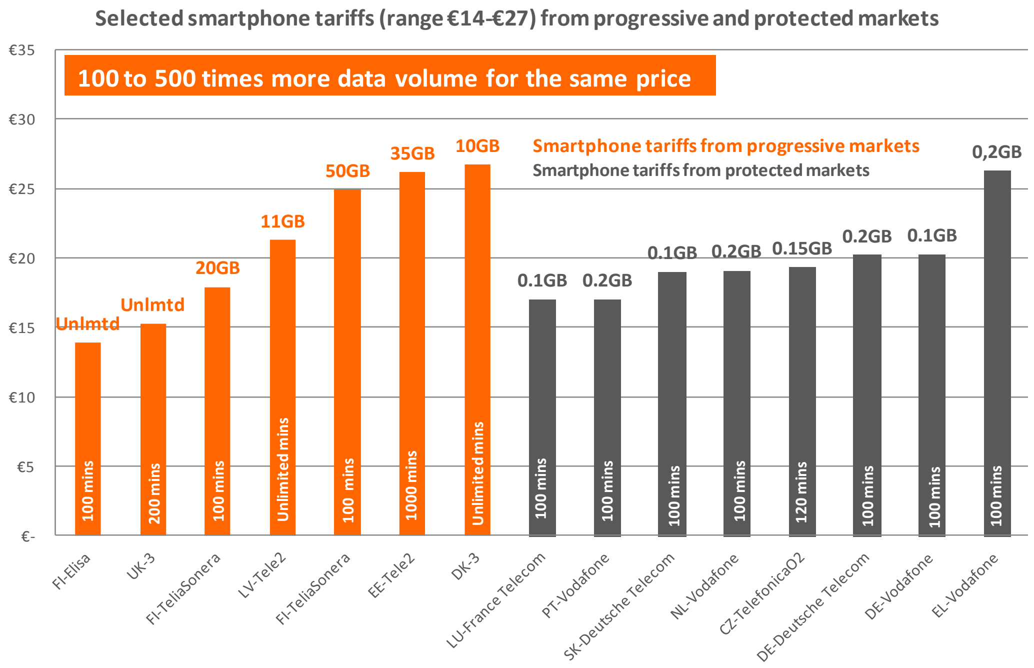
Bulgaria is the only protected market where a sub €10 smartphone tariff could be found. Bulgaria had the fourth lowest ARPU in EU27 in 2010. While many of the smartphone tariffs include very small (<0.5GB) data allowances there are independent challengers (e.g. Tele2 and 3) and incumbents (e.g. TeliaSonera and Elisa) that offer more than 1GB or even unlimited volume for less than €10.

In progressive markets independent challengers (e.g. Tele2 and 3) and incumbents (e.g. TeliaSonera and Elisa) offer smartphone tariffs with at least 1GB of data for less than €10.

4.2 ARPU-level selected smartphone tariffs in EU27

In Exhibit 4 below we present selected ARPU-level (€14-€27) smartphone tariffs from progressive and protected markets.

Exhibit 4 Selected ARPU-level smartphone tariffs from progressive and protected markets | MNO view



Source: Rewheel analysis

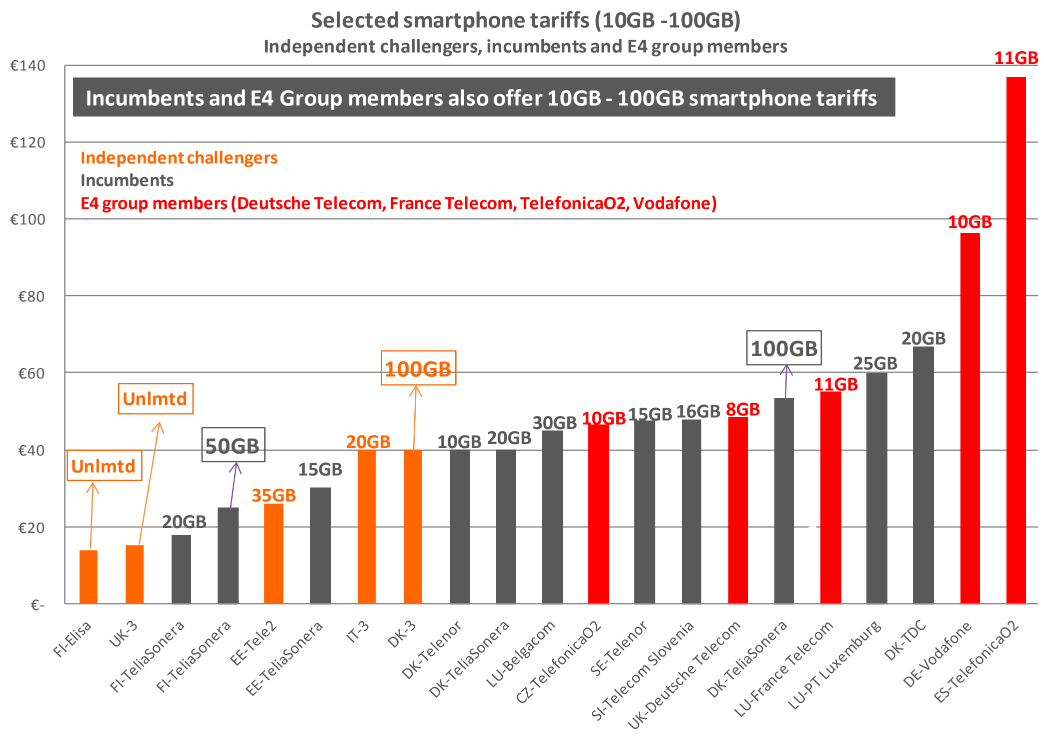
Independent challengers (e.g. Tele2 and 3) and incumbents (e.g. TeliaSonera and Elisa) that are present mainly in progressive markets offer smartphone tariffs priced at ARPU level that include 10GB to 50GB or unlimited data. Deutsche Telekom, France Telecom, Telefonica and Vodafone for the same price offer in protected markets a dismal 0.2GB.

In progressive markets independent challengers (e.g. Tele2 and 3) offer for the same price 100 to 500 times more data volume than what Vodafone, Deutsche Telekom, France Telecom or Telefonica offer in protected markets.

4.3 Selected unlimited or very high data allowance smartphone tariffs in EU27

In Exhibit 5 below we present selected smartphone tariffs having an unlimited or very high (>8GB) data volume allowance. Several incumbents such as TeliaSonera, Telenor, TDC, Belgacom etc. offer smartphone tariffs with up to 100GB. E4 group members as well do offer smartphone tariffs with more than 10GB although at a price that is several multiples of ARPU. Independent challengers offer smartphone tariffs with unlimited or very high data allowance at ARPU level or at a small premium above ARPU level.

Exhibit 5 Selected unlimited or very high data volume smartphone tariffs | MNO view



Source: Rewheel analysis

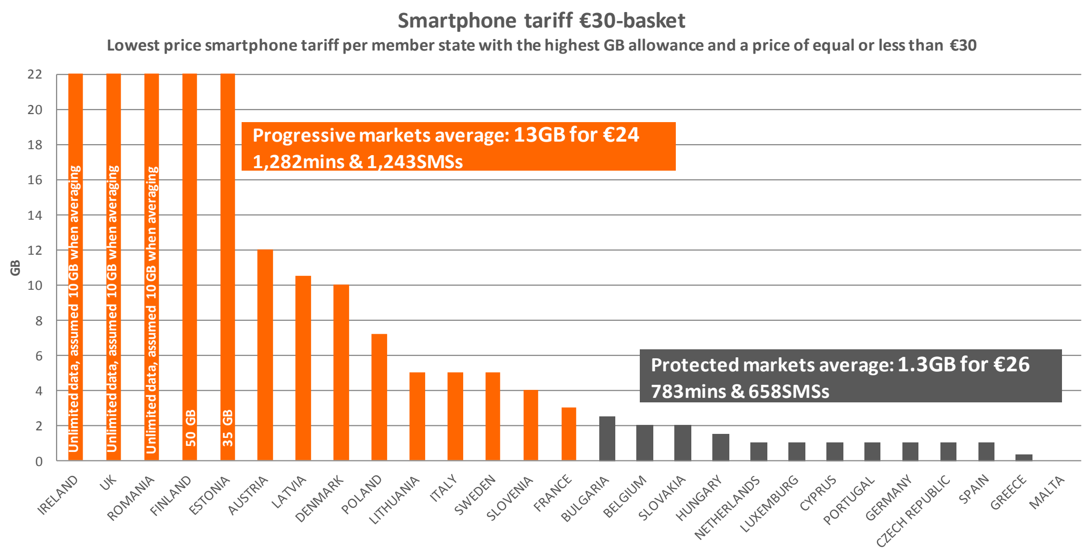
5 Member state level analysis

In this section we present the results of the comparative member state analysis starting with the €30-basket and the 2GB-basket. The €10, €20, and €100-basket and 0.1GB, 0.5GB, 1GB, 3GB and 4G-basket charts can be found in Section 7.

5.1 Smartphone tariff €30-basket in EU27 member states

In Exhibit 6 below we present the €30 smartphone tariff basket in EU27 member states.

Exhibit 6 €30 smartphone tariff basket | Member state view



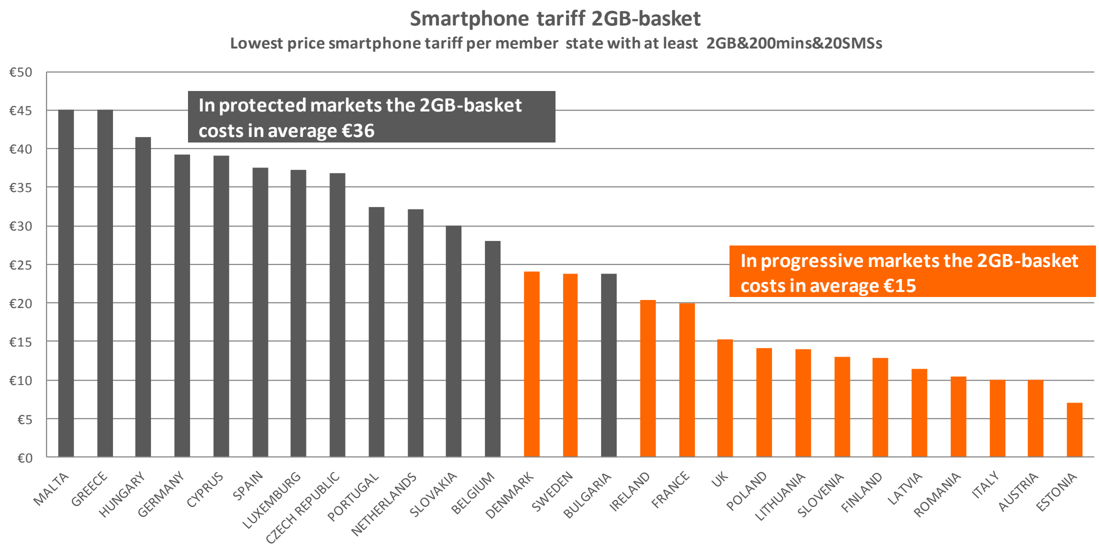
Source: Rewheel analysis

In progressive markets consumers get on average 10 times more (13GB vs 1.3GB) smartphone data volume than in protected markets when spending €24. On top they also get twice more minutes and SMSs.

5.2 Smartphone tariff 2GB-basket in EU27 member states

In Exhibit 7 below we present the 2GB smartphone tariff basket in EU27 member states.

Exhibit 7 2GB smartphone tariff basket | Member state view



Source: Rewheel analysis

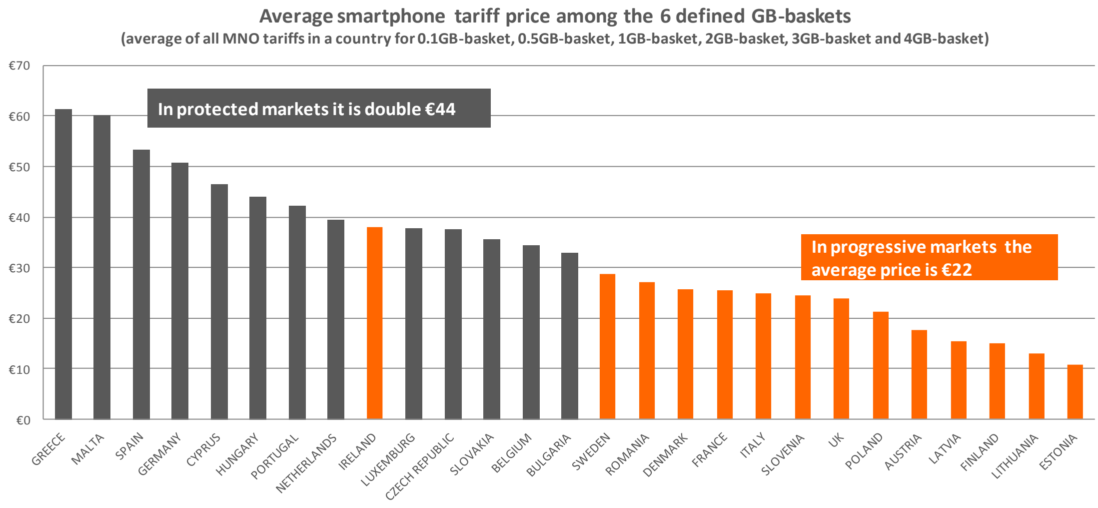
There are 10 progressive markets where the 2GB-basket costs less than €15 and 11 protected markets where it costs more than €30.

In protected markets the 2GB-basket costs on average €36 which is 140% (€15) more than in progressive markets.

5.3 Average smartphone tariff price among the 6 defined GB-baskets in EU27 member states

In Exhibit 8 below we present the average smartphone tariff prices among the 6 defined GB-baskets in EU27 member states.

Exhibit 8 Average smartphone tariff prices among the 6 defined GB-baskets | Member state view



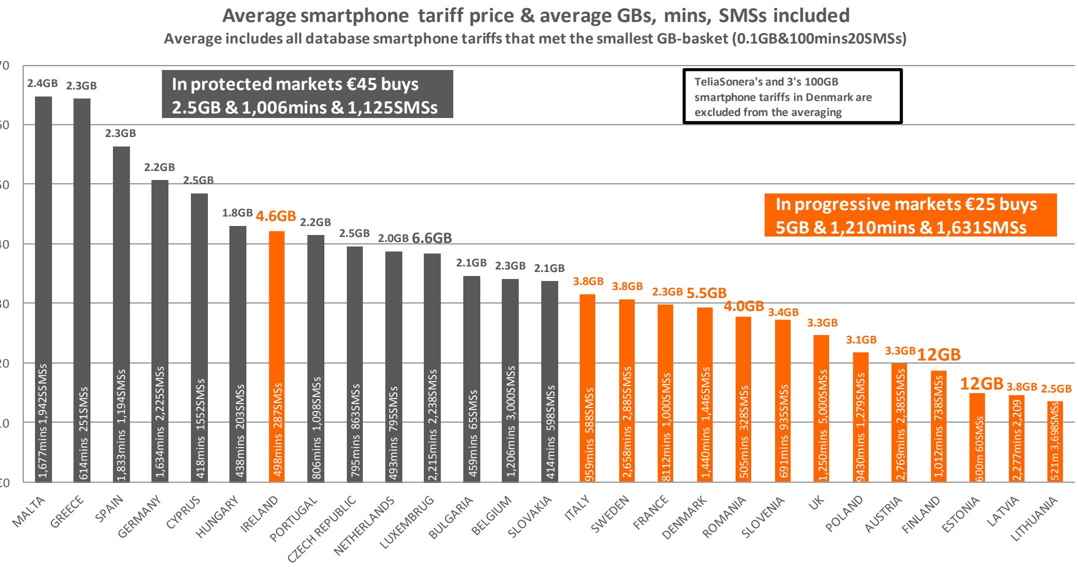
Source: Rewheel analysis

5.4 Average smartphone tariff price and average GBs, minutes & SMSs included in EU27 member states

In Exhibit 9 below we present the average smartphone tariff price and average GBs, minutes and SMSs included across the EU27 member states[12]. The main motivation for this chart was the fact that in many progressive markets MNOs offered the highest defined 4GB-basket for less than €17 and for a bit more consumers could get much higher data allowances (50GB-100GB). In contrast, in many protected markets €20 would not buy you even the smallest GB basket. For example in Finland and Austria with €17 and €15 respectively consumers could buy the 4GB-basket and if they paid €24 and €23 they get 50GB and 12GB respectively. By including the much higher GB allowance offers in progressive markets in the averaging we are attempting to capture the overall value for money in terms of GB data allowances that consumers enjoy in progressive versus protected markets. At the same time this view exposes the highly inefficient use of spectrum by MNOs in protected markets. Finally, in order not to bias the Danish value we have excluded from the average TeliaSonera's and 3's 100GB smartphone tariffs that retailed for €53 and €40 respectively. Even by excluding the reasonably priced tariffs, the Danish smartphone tariffs include on average the fourth highest GBs (5.5GB) among EU27. To put this in perspective, in some protected markets €40 would not even buy a smartphone tariff with 2GB of data while in Denmark TeliaSonera and 3 are offering 100GB for this price level.

[12] The chart below includes all smartphone tariffs recorded in the database that met the smallest GB-basket (0.1GB&100mins&20SMSs) and therefore the values are slightly different from the average smartphone tariff prices among the 6 defined GB-baskets

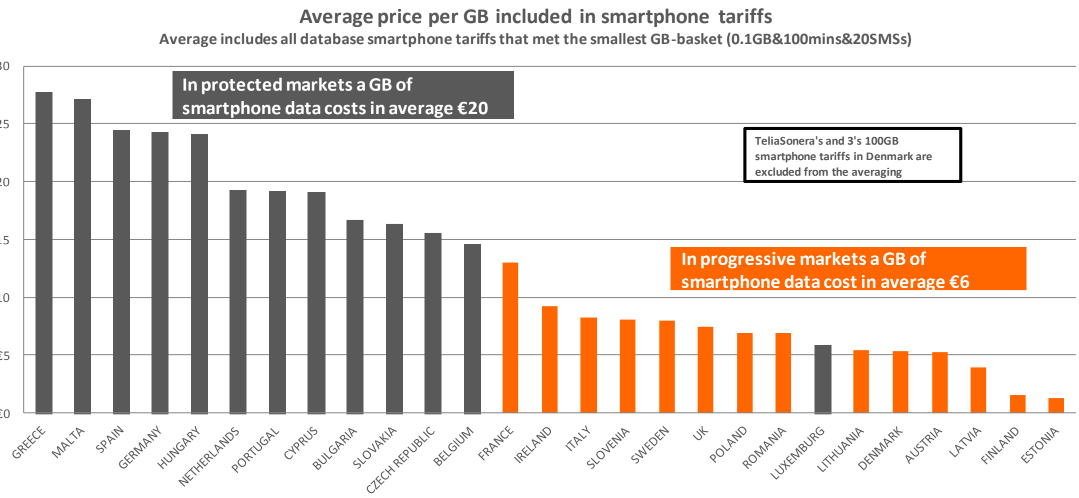
Exhibit 9 Average smartphone tariff price & average GBs, mins, SMSs included | Member state view



Source: Rewheel analysis

With the exception of Luxemburg, in all protected markets consumers need to pay €45 on average to get roughly 2GB of smartphone data volume and some 1,000 minutes and 1,000 SMSs. In contrast, in progressive markets consumers could buy on average 5GB and more than 1,000 minutes and 1000 SMSs for €25. In Exhibit 10 below we present the average price per GB included in smartphone tariffs in EU27.

Exhibit 10 Average price per GB included in smartphone tariffs | Member state view



Source: Rewheel analysis

In progressive markets (e.g. Estonia, Finland and Austria) a GB of smartphone data volume (including thousands of voice minutes and SMSs) costs on average up to 22 times cheaper than in Greece which is the most expensive market in the EU.

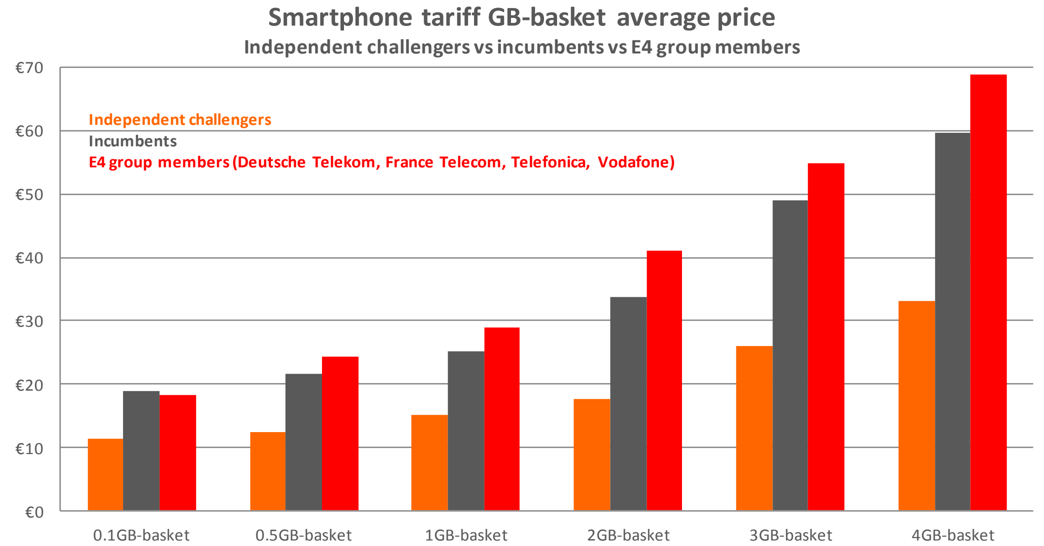
6 MNO group level analysis

In this section we present the results of the comparative MNO group analysis. Besides providing comparative charts between the individual independent challengers, incumbents and E4 group members we have also analyzed the price level of some other MNO groups. We selected all the E4 group members (Deutsche Telekom, France Telecom, Telefonica and Vodafone), incumbents that are present in at least three EU member states (TeliaSonera, Telenor, KPN and Telekom Austria) and independent challenger groups that are present in at least three EU member states (Tele2 and 3). We also created a custom independent challenger group by averaging among Free Mobile France, DNA Finland, Play Poland and Bite Latvia & Lithuania.

6.1 Smartphone tariff GB-basket average price of independent challengers, incumbents and E4 group members

In Exhibit 11 below we present the average price of smartphone tariffs of the six GB-baskets for independent challengers, incumbents and E4 group members.

Exhibit 11 Smartphone tariff GB-basket average price | MNO group view



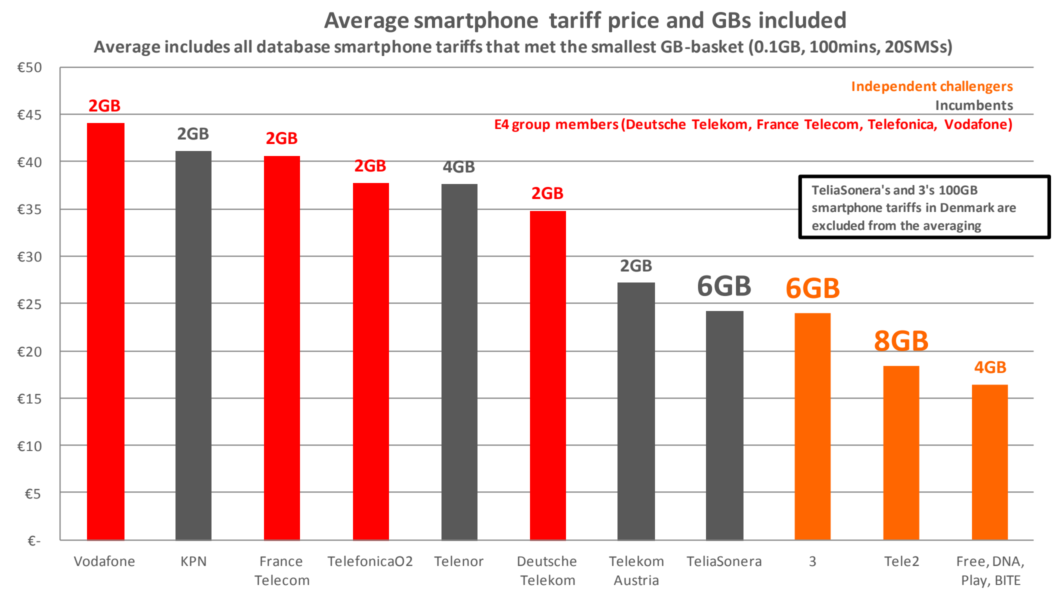
Source: Rewheel analysis

With the exception of the smallest GB-basket (0.1GB-basket) the E4 group members charge on average between 2 and 3 times more than independent challengers.

6.2 Average smartphone tariff price and average GBs, minutes and SMSs included by MNO groups

In Exhibit 12 below we present the average smartphone tariff price and average GBs included by various groups. The chart includes all database smartphone tariffs per group that met the smallest GB-basket (0.1GB&100mins&20SMSs). As for the member state averages, in order not to bias TeliaSonera's and 3's values we have excluded from the average TeliaSonera's and 3's 100GB Danish smartphone tariffs.

Exhibit 12 Average smartphone tariff price and GBs included | MNO group view

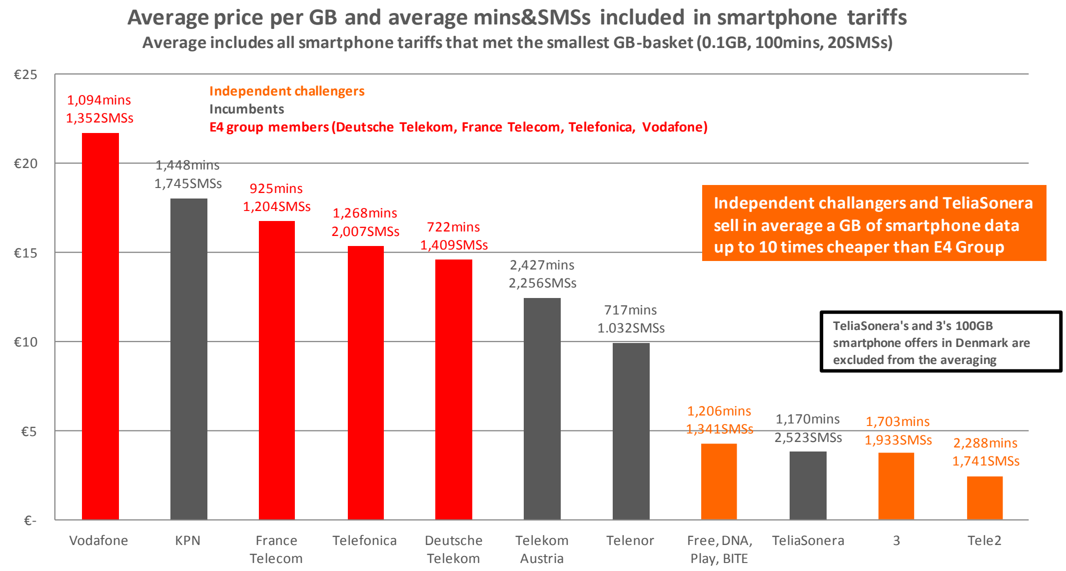


Source: Rewheel analysis

Independent challenger groups such as 3 and Tele 2 offer on average up to 4 times more data volume than Vodafone, at one third of the price. So 12 times more value.

In Exhibit 13 below we present the average price per GB and average GBs, minutes, SMSs included by various MNO groups in their smartphone tariffs.

Exhibit 13 Average price per GB and average mins & SMSs included in smartphone tariffs | MNO group view



Source: Rewheel analysis

What is evident and surprisingly similar with the member state view of this chart is that independent challengers price a GB on average below €5, sometimes as low as €2.40 (Tele2) – inclusive of substantial voice and SMS bundles – while the E4 Group members between €15 and as high as €22 (Vodafone). The average price of GB of smartphone data volume in protected markets ranged from €15 to €27.

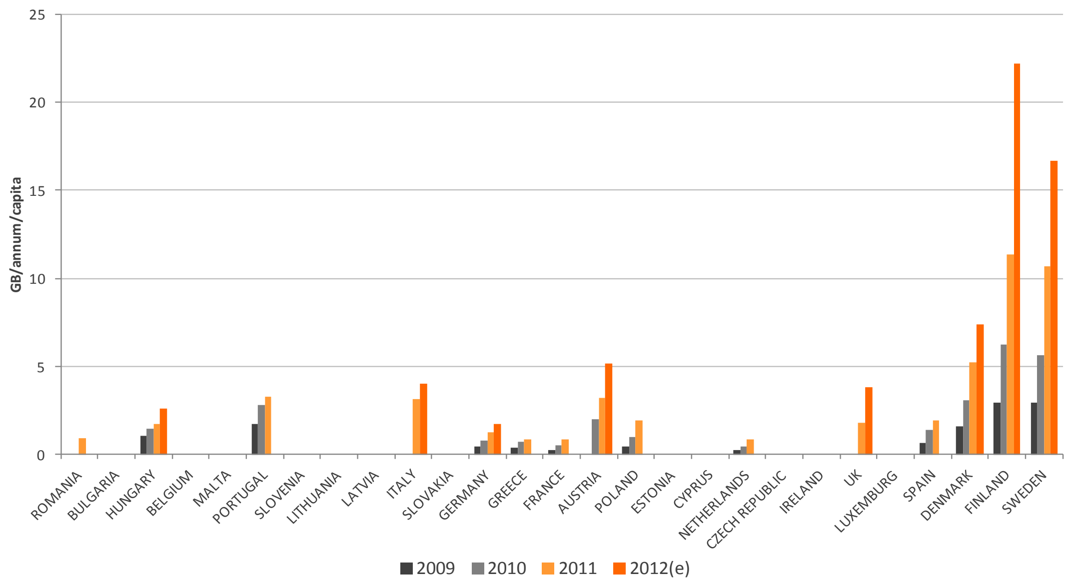
Independent challengers (e.g. Tele2 and 3) price on average a GB of smartphone data volume (including similar sized voice minute and SMS bundles) up to 10 times cheaper than Vodafone, KPN, France Telecom, Telefonica or Deutsche Telekom.

The obvious question that needs to be asked is how is it technologically possible and economically viable for Tele2, 3 and TeliaSonera to offer on average 4 times more GBs at 3 times lower price?

- *Do independent challengers have privileged access to more efficient technologies (i.e. LTE) than the E4 group members?*
- *Do they hold relatively more spectrum capacity than the E4 group members?*
- *Do independent challengers have access to more radio sites and their spectrum reuse factor is higher than the E4 group members?*
- *Or are independent challengers (i.e. Tele2, DNA) unprofitable?*

None of the above is true. The answer is actually very simple. Independent challengers and incumbents such as TeliaSonera that are present mainly in progressive markets are utilizing the spectrum resources assigned to them. In contrast, incumbent telco groups, having substantial interests in European fixed broadband assets, rather that utilising their spectrum resources instead they appear to be more concerned about keeping the unit price of mobile data on very high and often consumer unaffordable level by restricting supply, the same way the lawful "cartel" of OPEC controls the price of oil by turning the tap off. In progressive markets (where at least one independent challenger is present that has triggered the spectrum utilisation competition) such as Finland, Sweden Austria and UK the mobile data consumption per capita, as shown in Exhibit 14 below is up to ten times higher than in protected markets (where none of the MNOs are strategically incentivised in triggering a "capacity play" on the market).

Exhibit 14 Annual mobile data consumption per capita in selected member states



Source: Regulator reports, Rewheel analysis

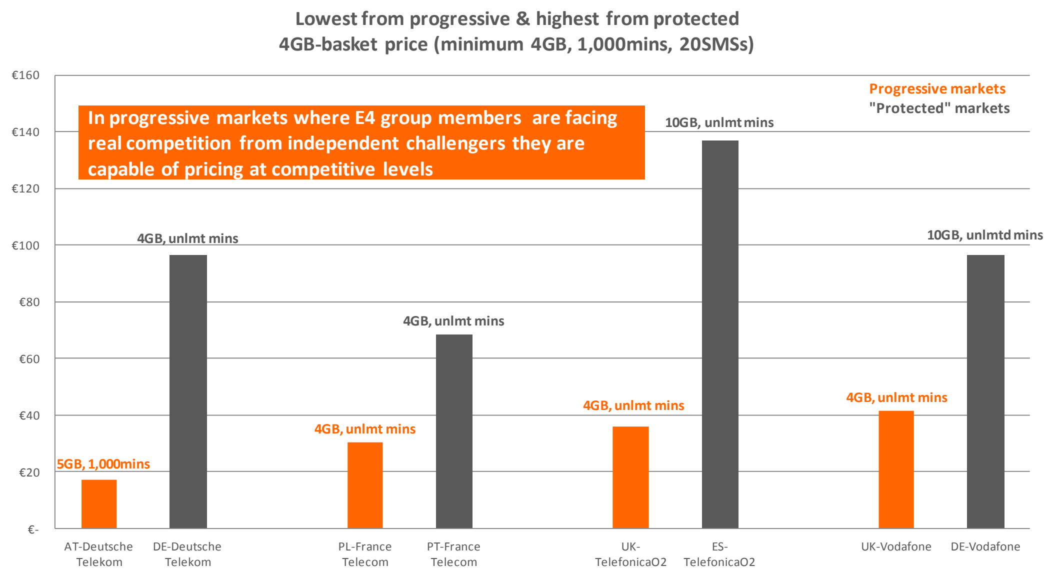
Note that the spirit of the EU electronic communications directives and Radio Spectrum Policy Framework clearly envisages and promotes the efficient allocation and use of the EU standardized spectrum bands.

In almost half of the EU27 member state markets spectrum is used very inefficiently by many incumbent telco groups who are keen to protect their legacy fixed assets and cement their European dominance with more consolation at the expense of competition.

6.3 Lowest from progressive and highest from protected 4GB-basket smartphone tariff prices of E4 group members

In Exhibit 15 below we present the lowest from progressive markets and highest from protected markets 4GB-basket smartphone tariff prices of E4 group members.

Exhibit 15 Lowest from progressive & highest from protected 4GB-basket price | MNO Group view



Source: Rewheel analysis

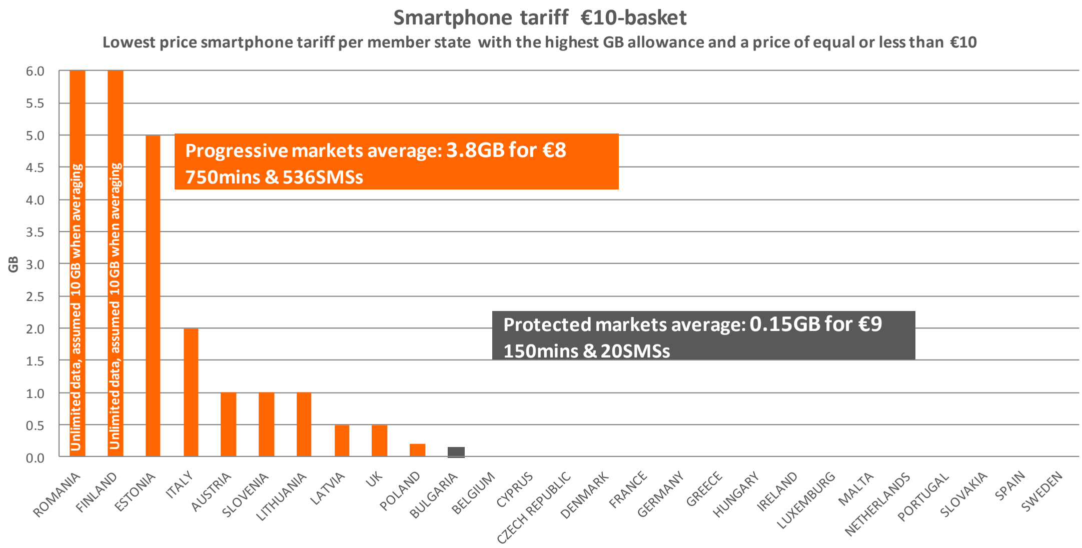
As it can be clearly seen from the chart E4 group members *are* capable of pricing competitively when facing real competition from independent challengers. But when operating in protected markets and face only "friendly" competition by other E4 group members or incumbents (e.g. Germany), apparently they are much less keen to offer competitively priced smartphone tariffs.

7 Member state level detailed basket analysis

In this section we present all €-baskets and GB-baskets for the EU27 member states.

In the €10-basket, €20-basket and €30-basket some member states have no values and are grouped on the right hand side of the charts. Member states were grouped without a GB value because there was no tariff available by any of the MNO present in the market that was lower than the monetary € value of the basket that also met the minimum 0-1GB-basket (0.1GB & 100mins & 20SMSs). In other words the entry level smartphone tariffs in the member state were more expensive than the defined monetary € value of the basket.

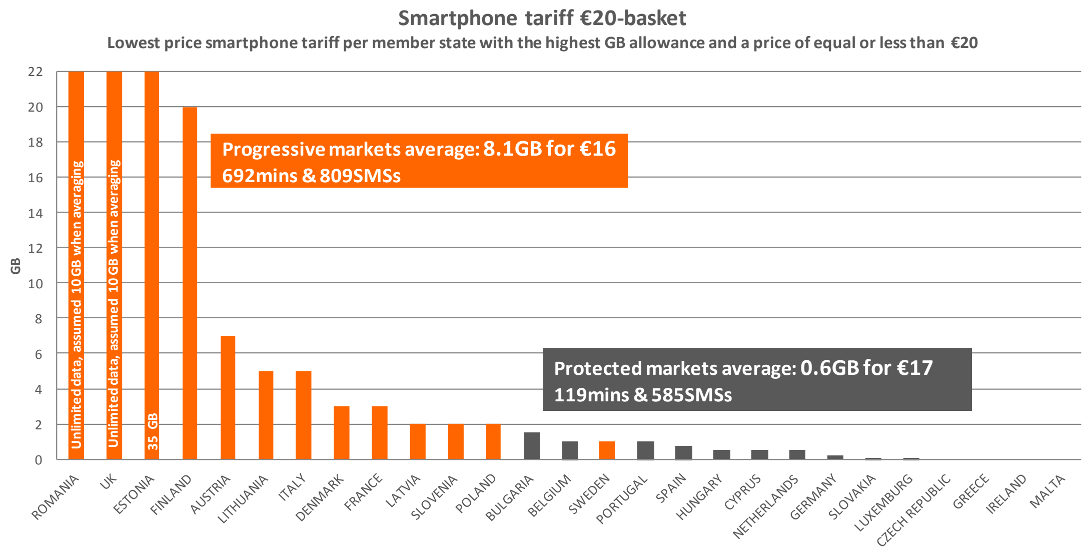
Exhibit 16 Smartphone tariff €10-basket | Member state view



Source: Rewheel analysis

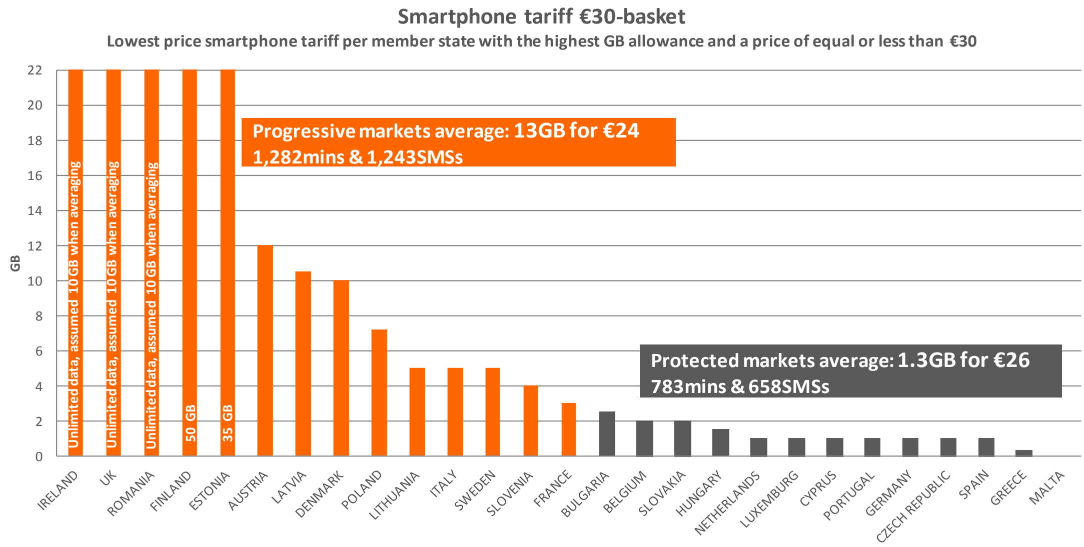
The only protected member state market where a smartphone tariff is available for a price which is less than €10 is Bulgaria.

Exhibit 17 Smartphone tariff €20-basket | Member state view



Source: Rewheel analysis

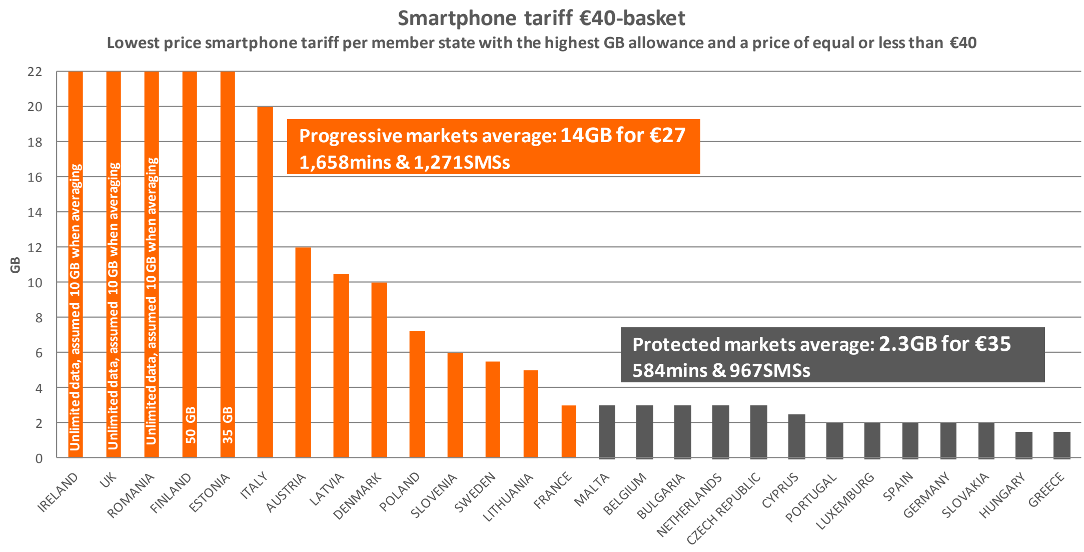
Exhibit 18 Smartphone tariff €30-basket | Member state view



Source: Rewheel analysis

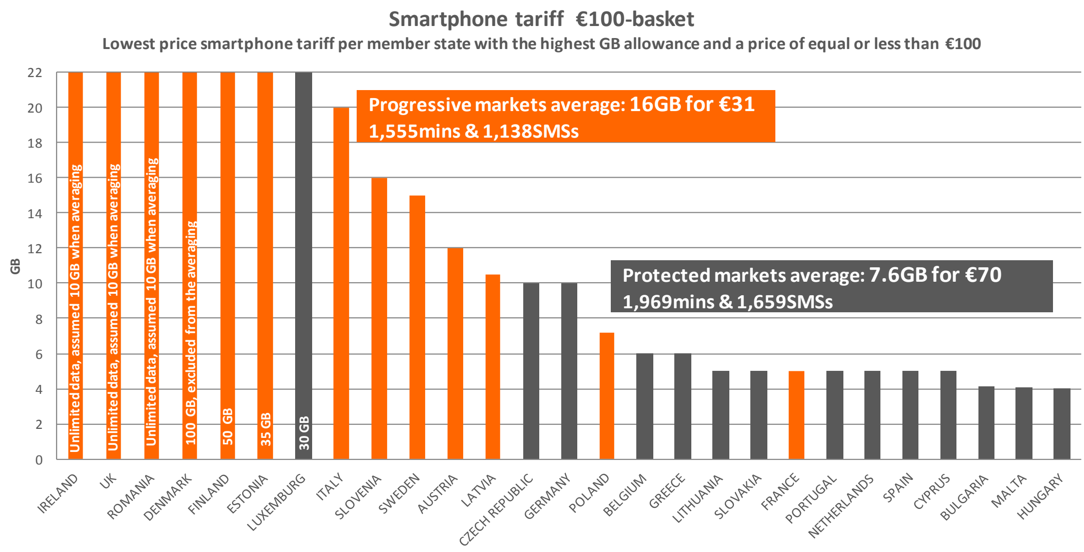
In progressive markets consumers get on average 10 times more (13GB vs 1.3GB) smartphone data volume than in protected markets when spending €24. On top they also get twice as many minutes and SMSs.

Exhibit 19 Smartphone tariff €40-basket | Member state View



Source: Rewheel analysis

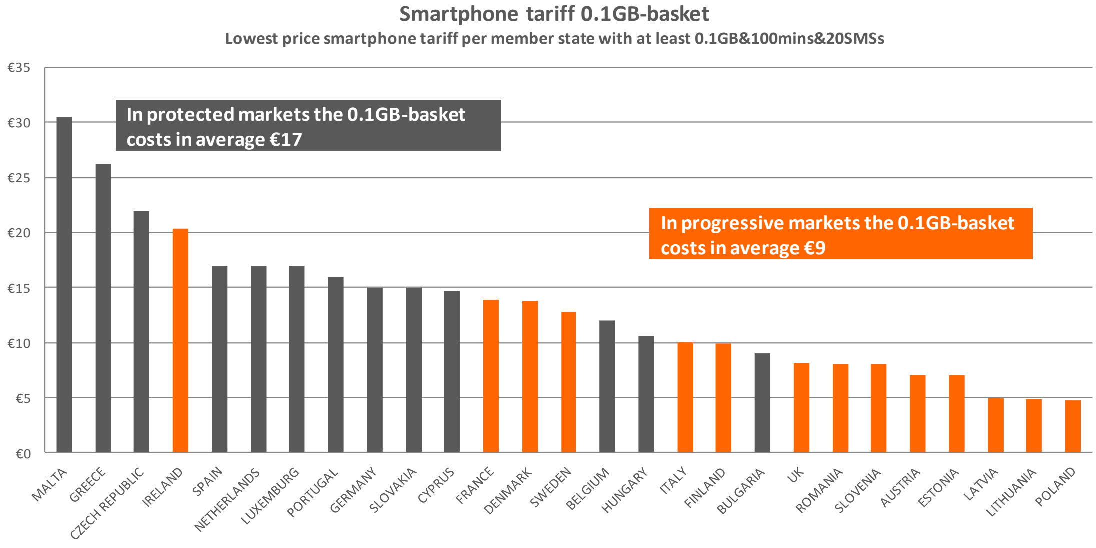
Exhibit 20 Smartphone tariff €100-basket | Member state view



Source: Rewheel analysis

Consumers need to pay on average €70 in protected markets to purchase very large accommodative data allowances (i.e. 7.6GB). In progressive markets they get similar very large accommodative data allowances (i.e. 8.1GB) by paying on average as little as €16. Next we present the GB-baskets.

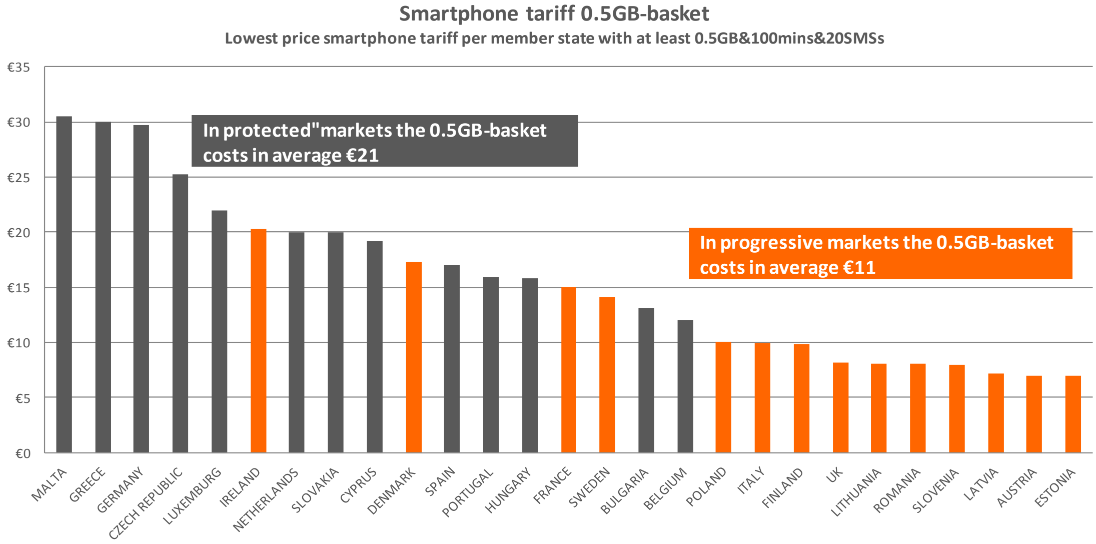
Exhibit 21 Smartphone tariff 0.1GB-basket | Member state view



Source: Rewheel analysis

There is more than 6 times price difference for the 0.1GB-basket between the EU27 member states.

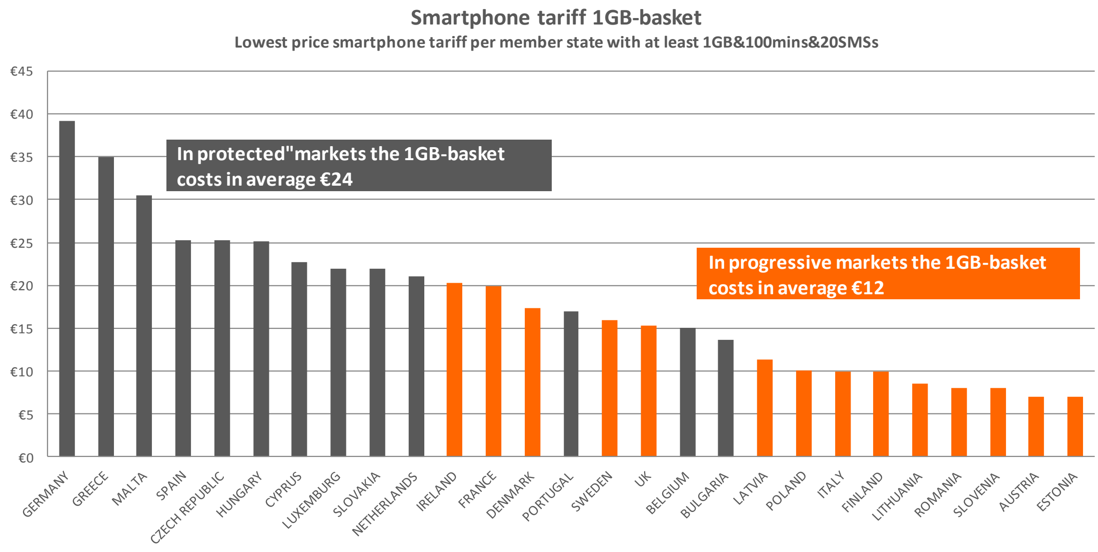
Exhibit 22 Smartphone tariff 0.5GB-basket | member state view



Source: Rewheel analysis

There is more than 4 times price difference for the 0.5GB-basket between the EU27 member states.

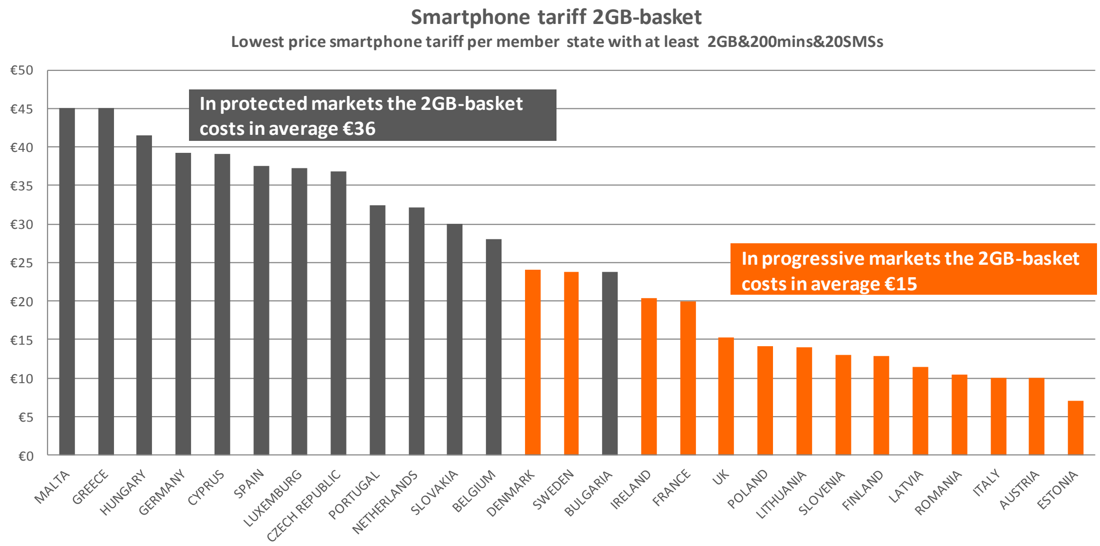
Exhibit 23 Smartphone tariff 1GB-basket | Member state view



Source: Rewheel analysis

There is more than 5 times price difference for the 1GB-basket between the EU27 member states.

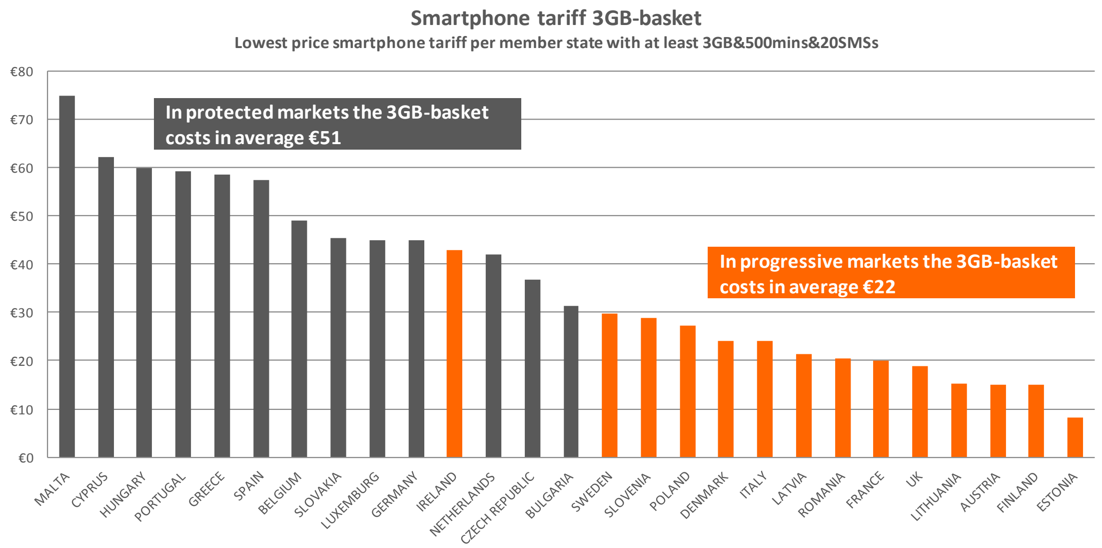
Exhibit 24 Smartphone tariff 2GB-basket | Member state view



Source: Rewheel analysis

There is more than 6 times price difference for the 2GB-basket between the EU27 member states.

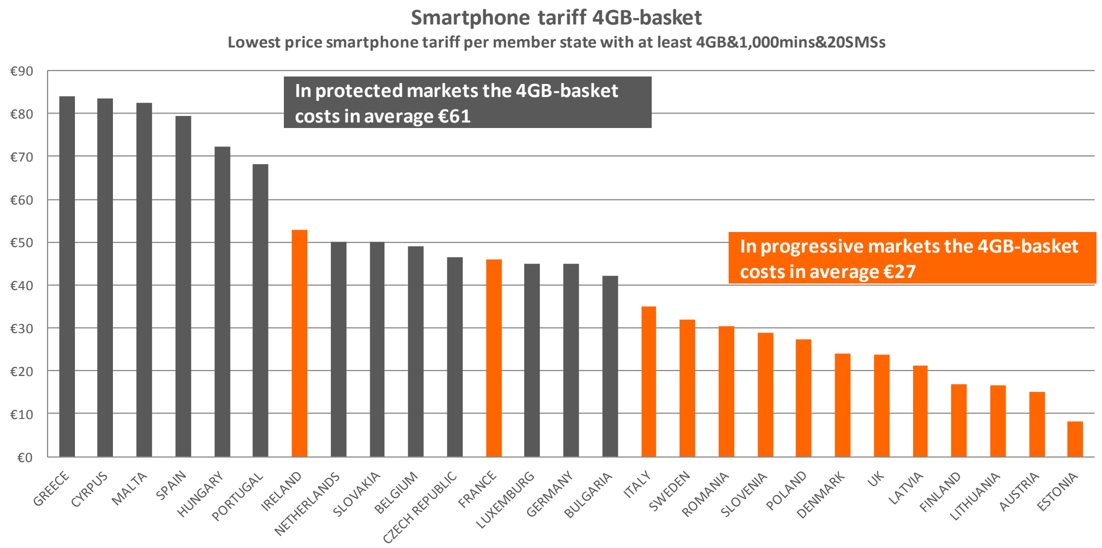
Exhibit 25 Smartphone tariff 3GB-basket | Member state view



Source: Rewheel analysis

There is more than 9 times price difference for the 3GB-basket between the EU27 member states.

Exhibit 26 Smartphone tariff 4GB-basket | Member state view



Source: Rewheel analysis

There is over 10 times price difference for the 4GB-basket between the EU27 member states.

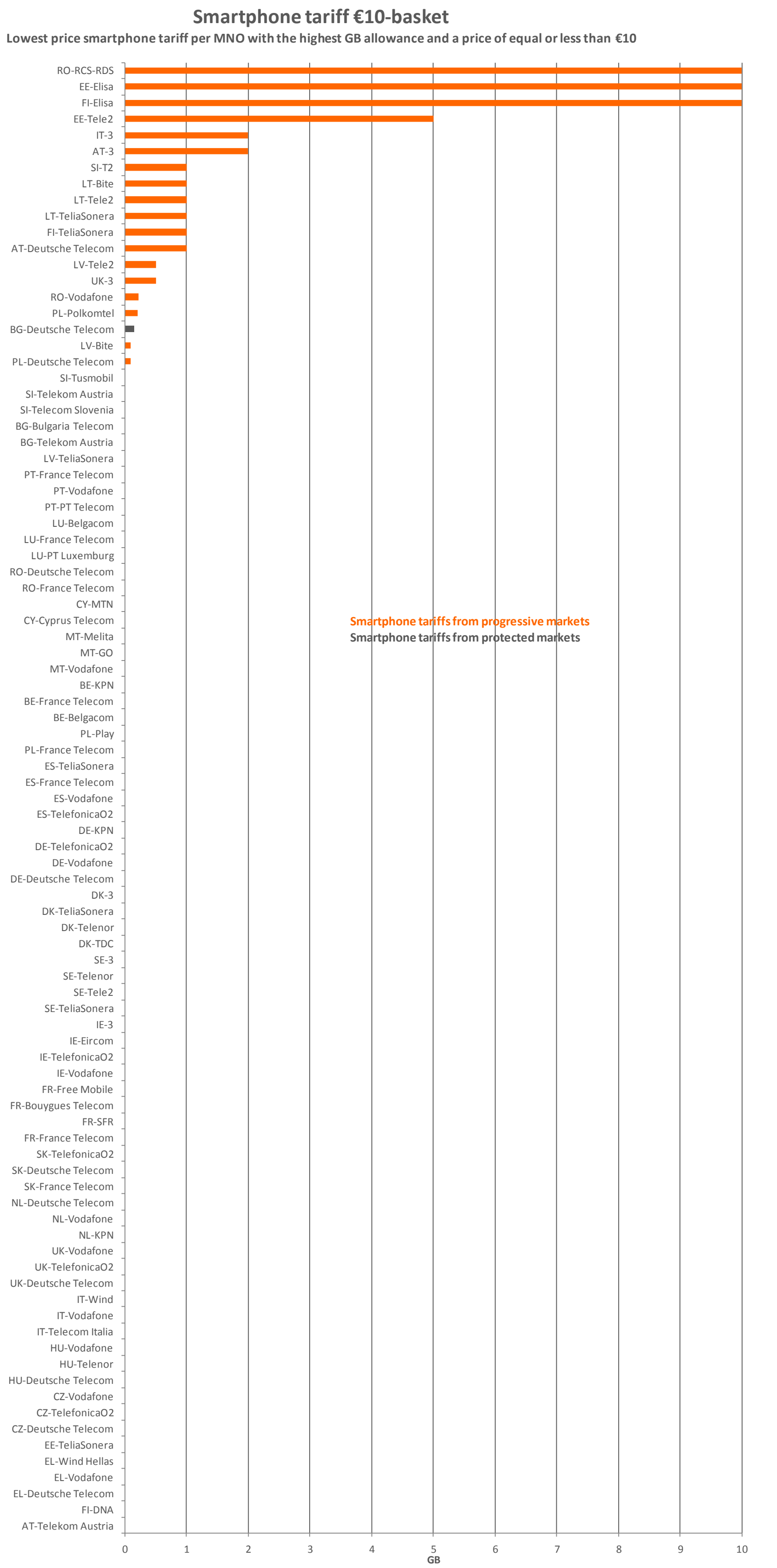
8 MNO level detailed basket analysis

In this section we present the €-baskets and the GB-baskets for all 91 MNOs present in the EU27 member states.

For the €-baskets we coloured the MNOs based on their market classification (progressive versus protected) and for the GB-baskets we coloured the MNOs based on their group classification (Independent challengers, incumbents and E4 group members).

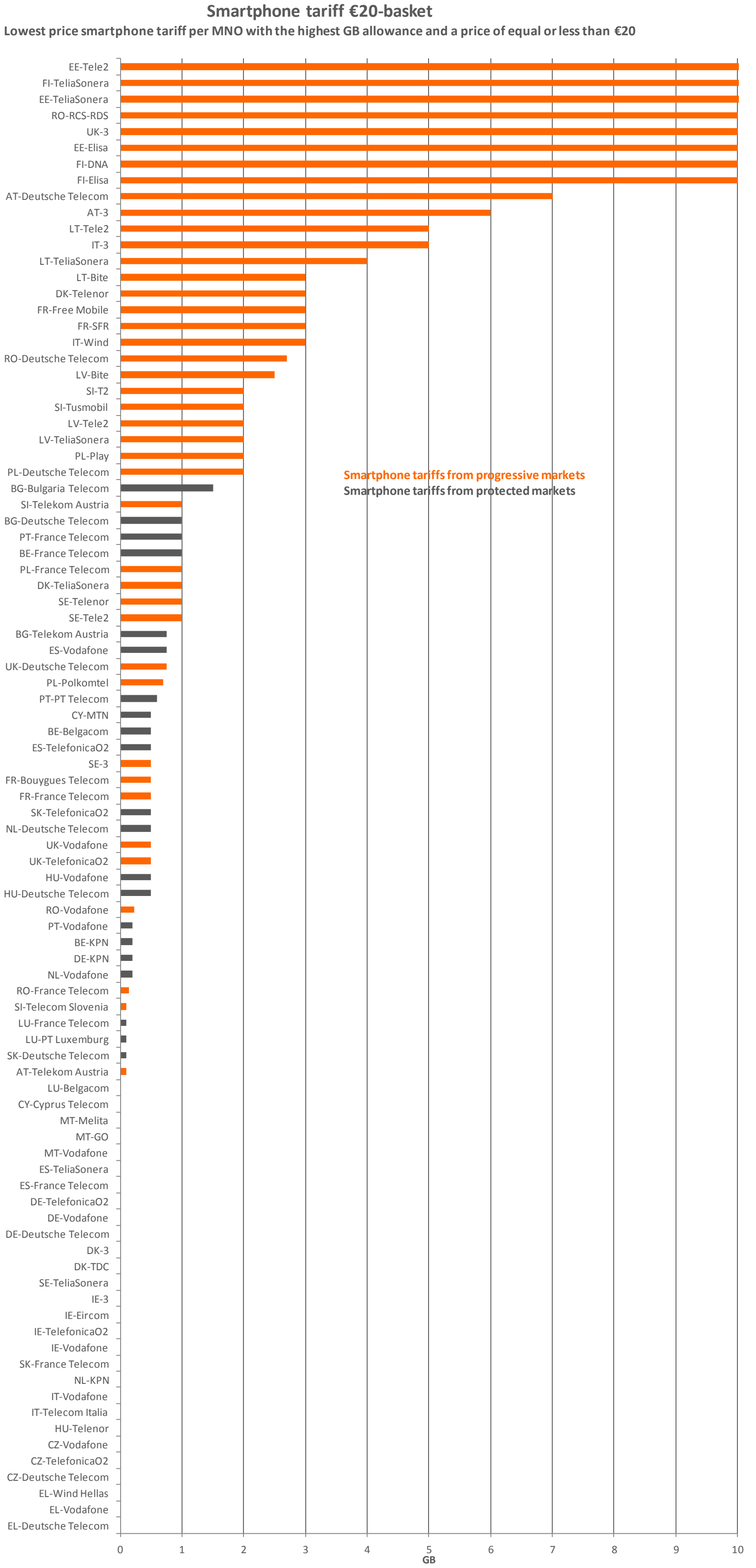
We start with the €-baskets.

Exhibit 27 Smartphone tariff €10-basket | MNO view



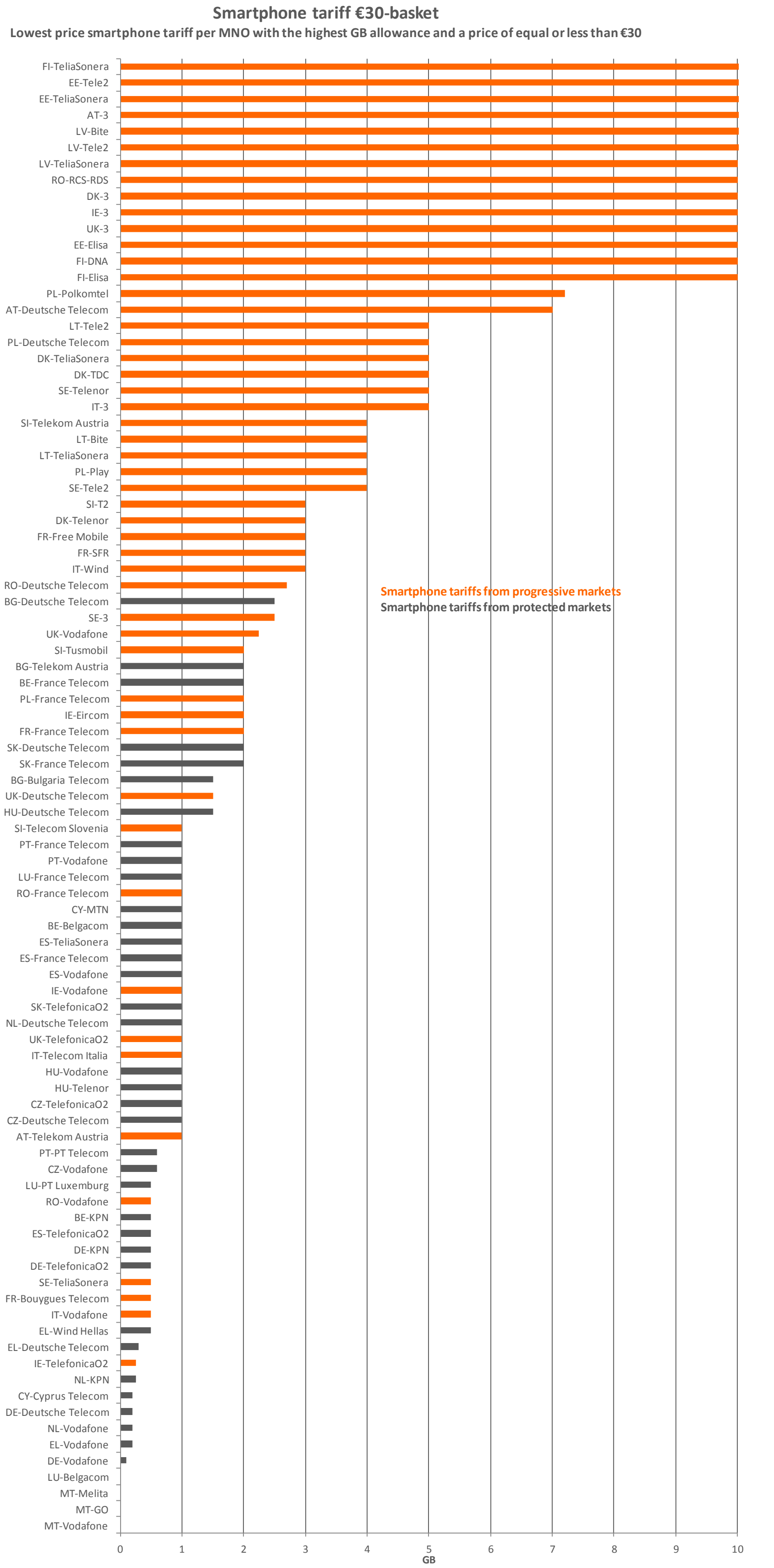
Source: Rewheel analysis

Exhibit 28 Smartphone tariff €20-basket | MNO view



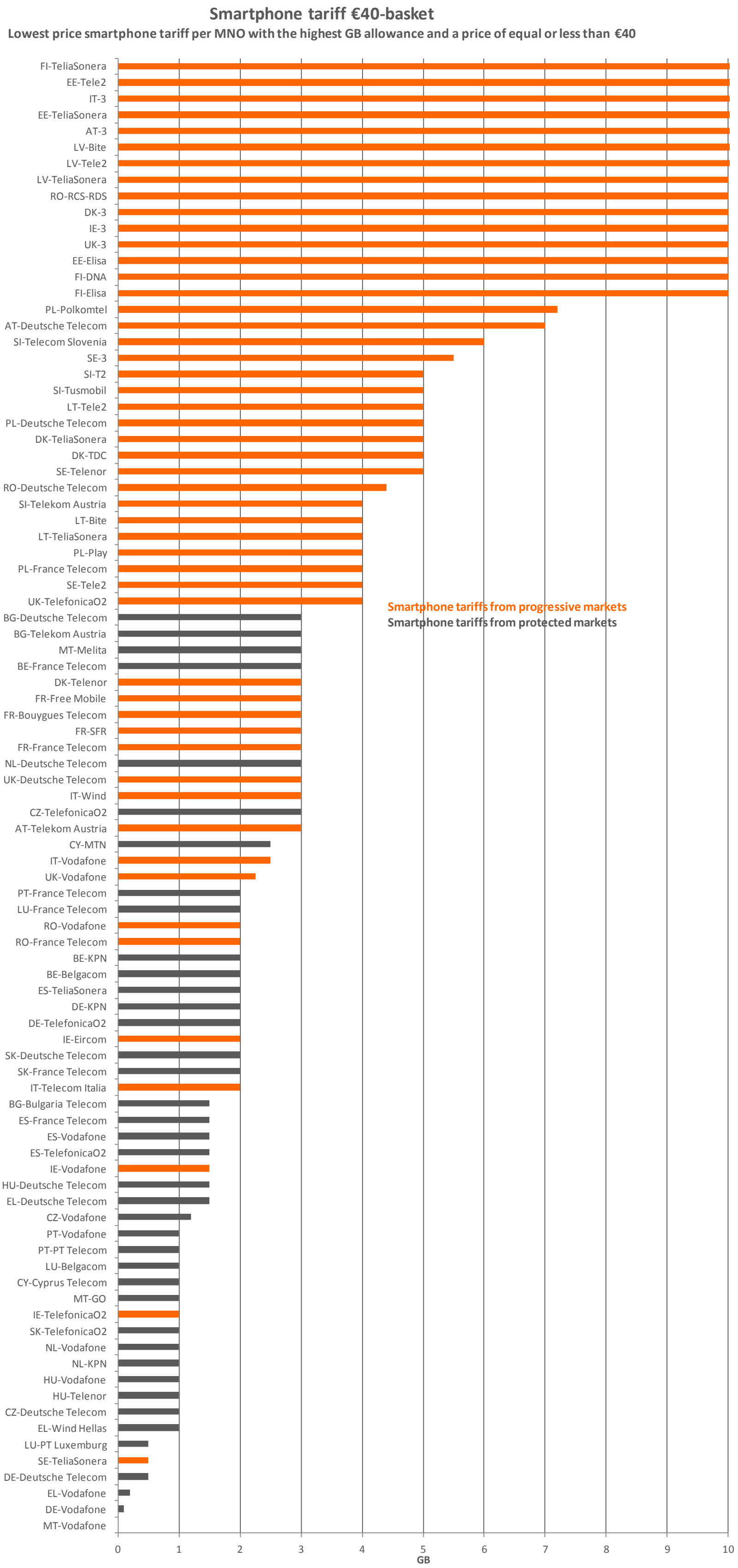
Source: Rewheel analysis

Exhibit 29 Smartphone tariff €30-basket | MNO view



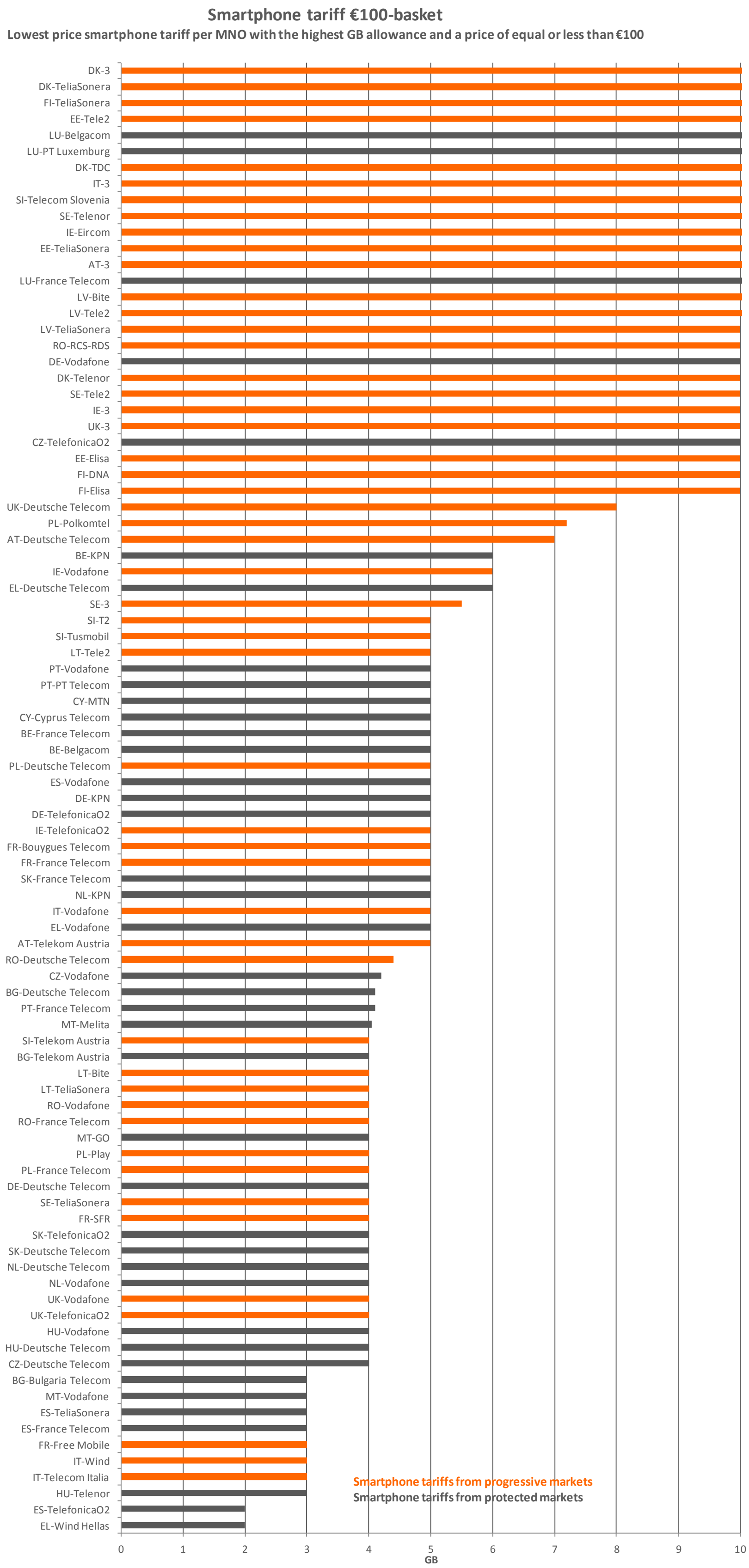
Source: Rewheel analysis

Exhibit 30 Smartphone tariff €40-basket | MNO view



Source: Rewheel analysis

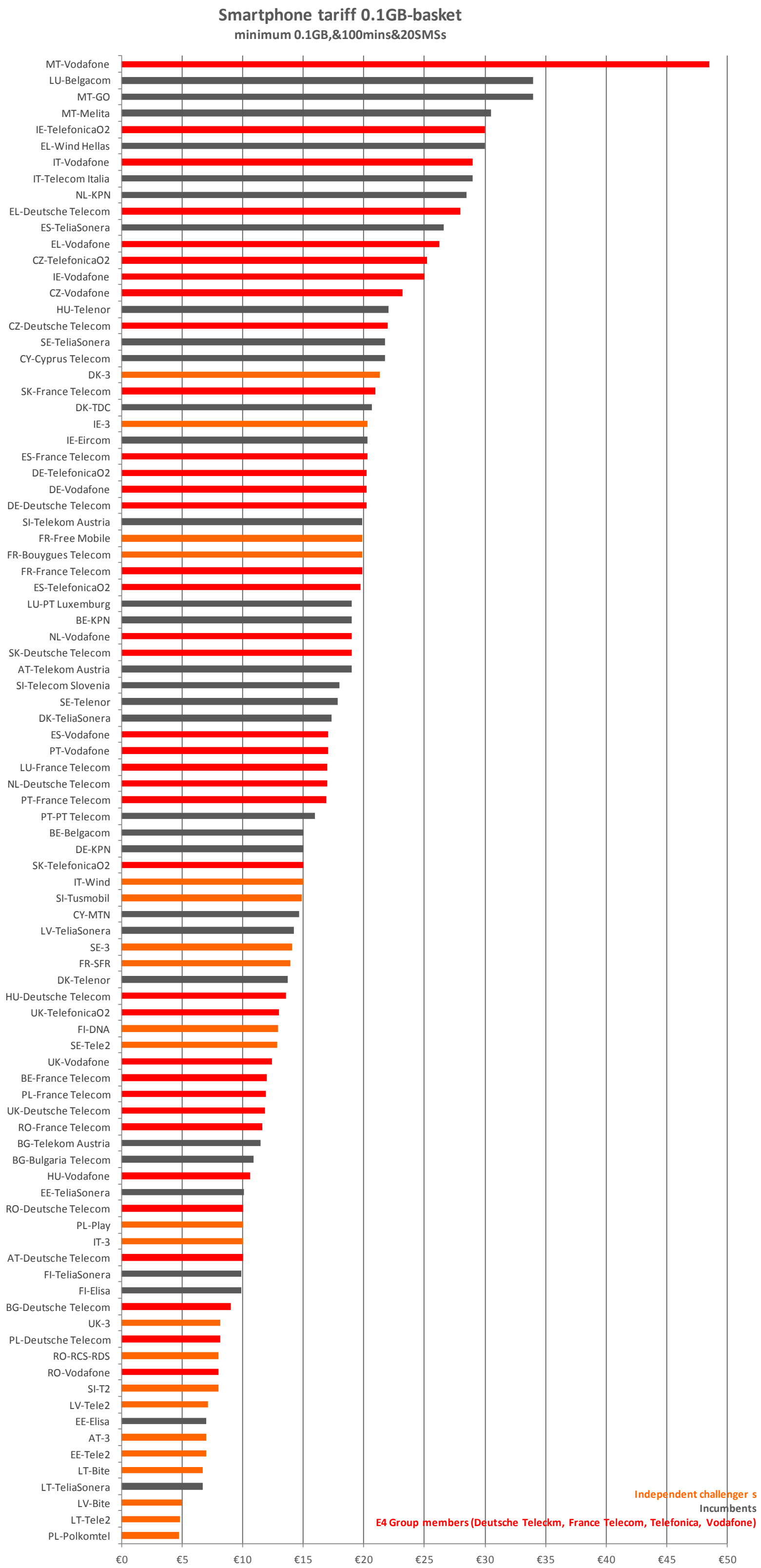
Exhibit 31 Smartphone tariff €100-basket | MNO view



Source: Rewheel analysis

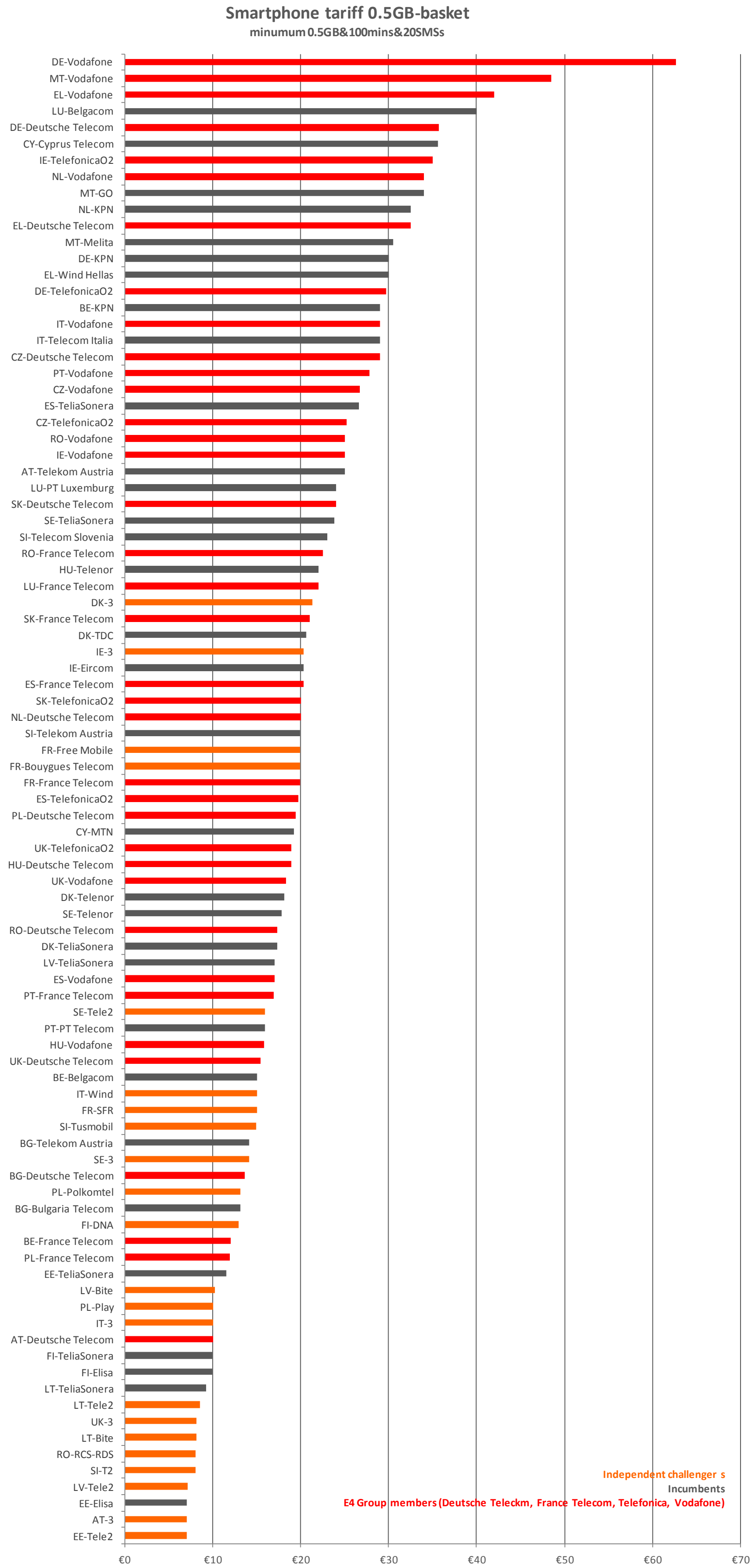
Next we present the GB-baskets.

Exhibit 32 Smartphone tariff 0.1GB-basket | MNO view



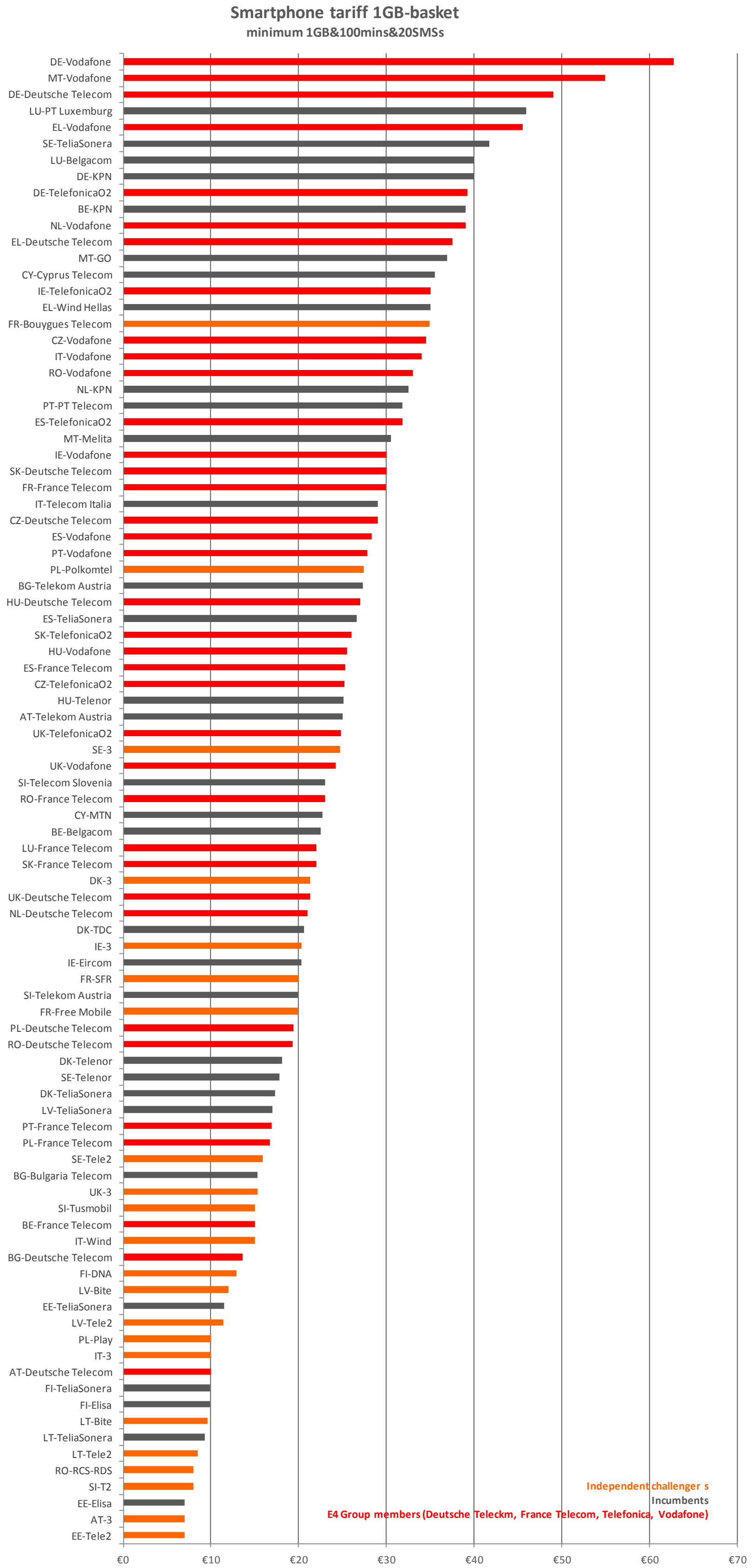
Source: Rewheel analysis

Exhibit 33 Smartphone tariff 0.5GB-basket | MNO view



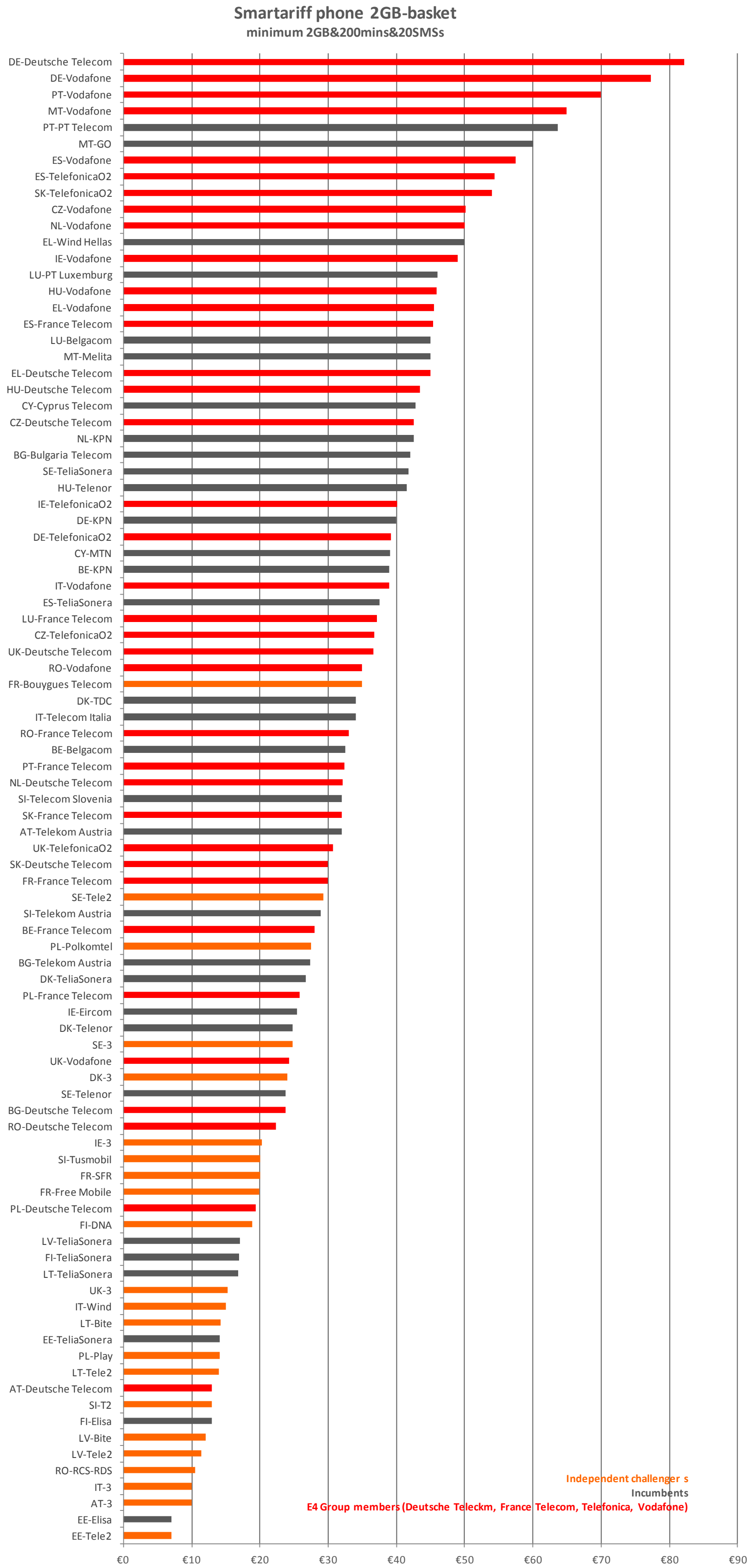
Source: Rewheel analysis

Exhibit 34 Smartphone tariff 1GB-basket | MNO view



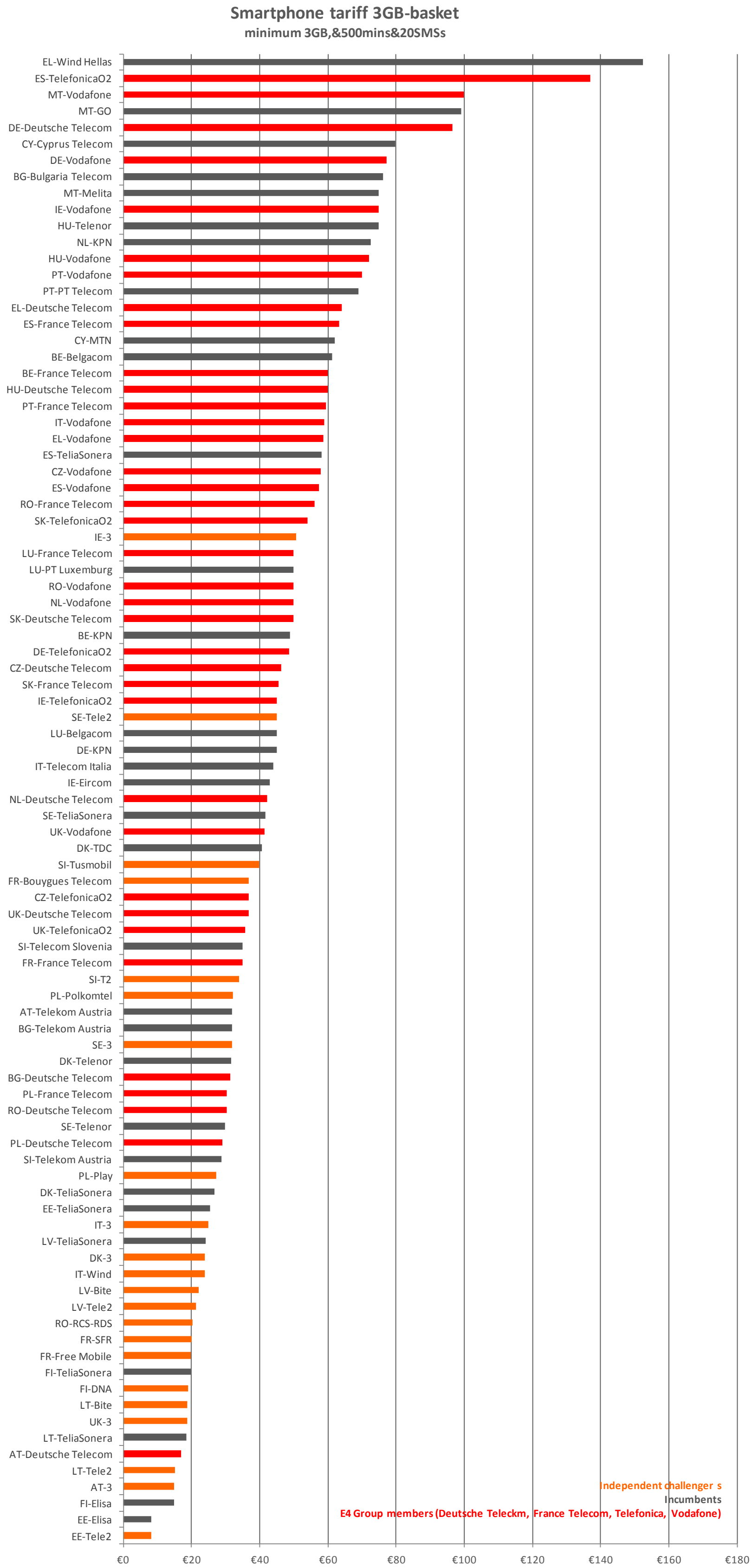
Source: Rewheel analysis

Exhibit 35 Smartphone tariff 2GB-basket | MNO view



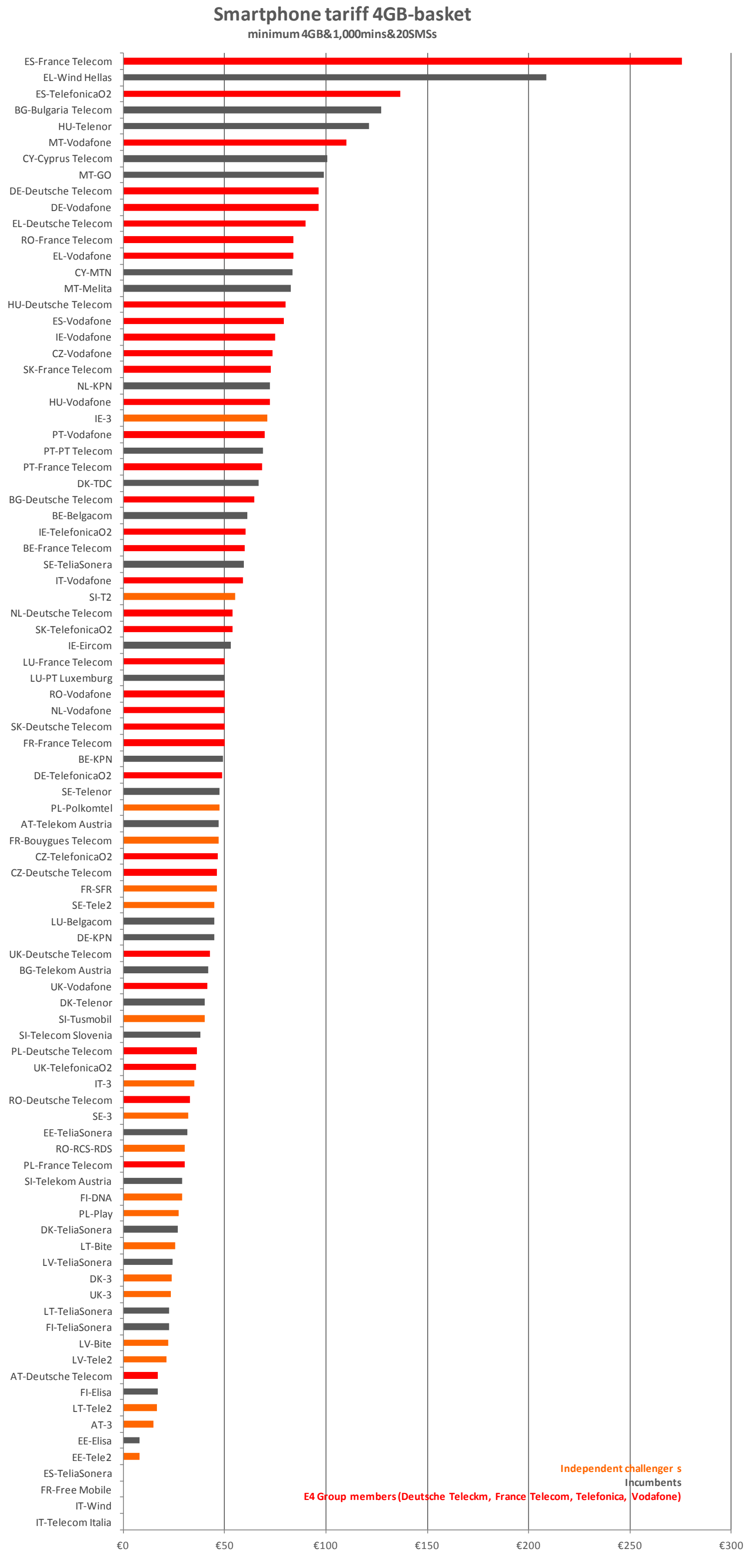
Source: Rewheel analysis

Exhibit 36 Smartphone tariff 3GB-basket | MNO view



Source: Rewheel analysis

Exhibit 37 Smartphone tariff 4GB-basket | MNO view



Source: Rewheel analysis

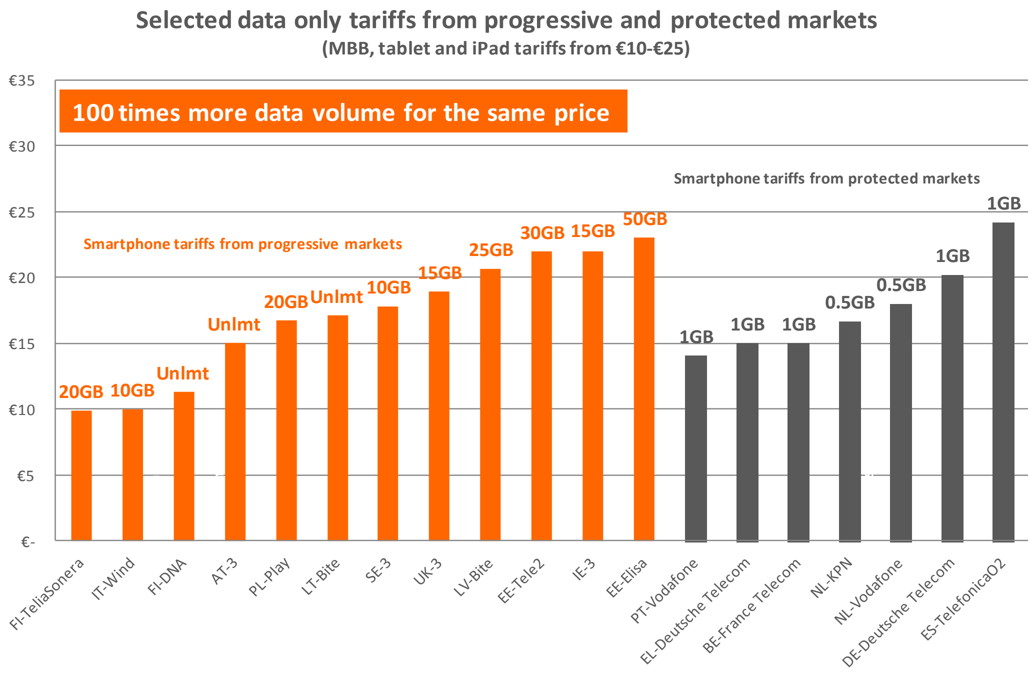
There is 10, 9, 9, 11,18 and 33 times price difference for the 0.1GB-basket, 0.5GB-basket, 1GB-basket, 2GB-basket, 3GB-basket and 4GB-basket, respectively, between the 91 MNOs.

9 Data only tariff analysis

In this section we present the results of comparative analysis of the data only tariffs. As with the smartphone tariff analysis we will first present selected ARPU-level (€10 - €25) data only tariffs from progressive markets and protected markets.

The selected ARPU-level data only tariffs are presented in Exhibit 38 below.

Exhibit 38 Selected data only tariffs from progressive and protected markets | MNO view

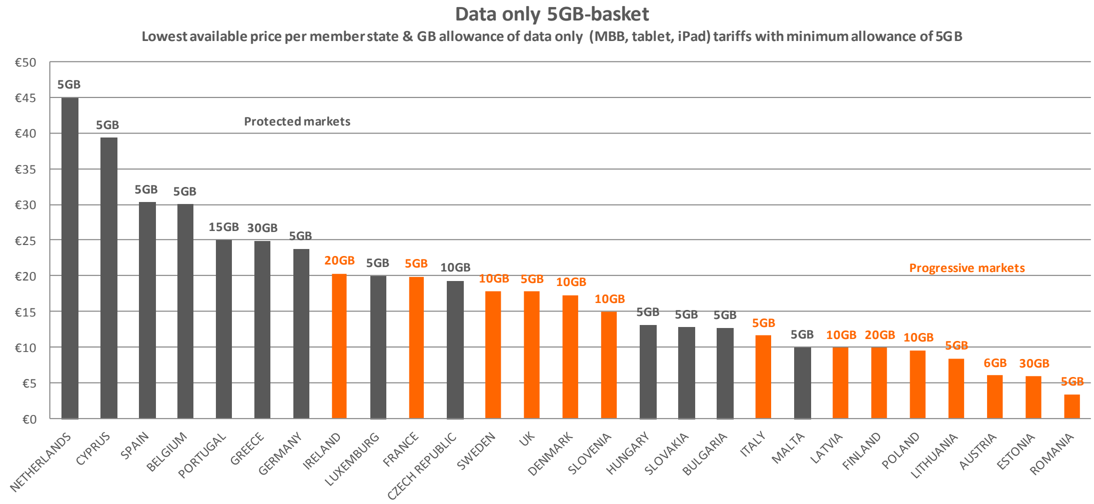


Source: Rewheel analysis

In progressive markets MNOs offer for the same price up to 100 times more data volume than what Deutsche Telekom, France Telecom, Telefonica, Vodafone or KPN offer in protected markets.

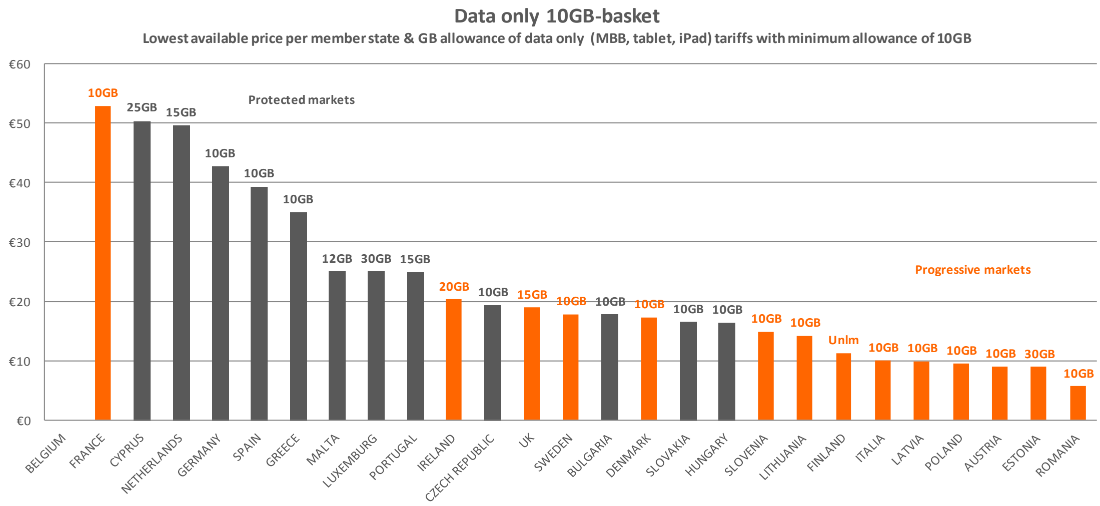
The 5GB-basket, 10GB-basket and 20GB-basket for data only tariffs are presented below.

Exhibit 39 Data only 5GB-basket | Member state view



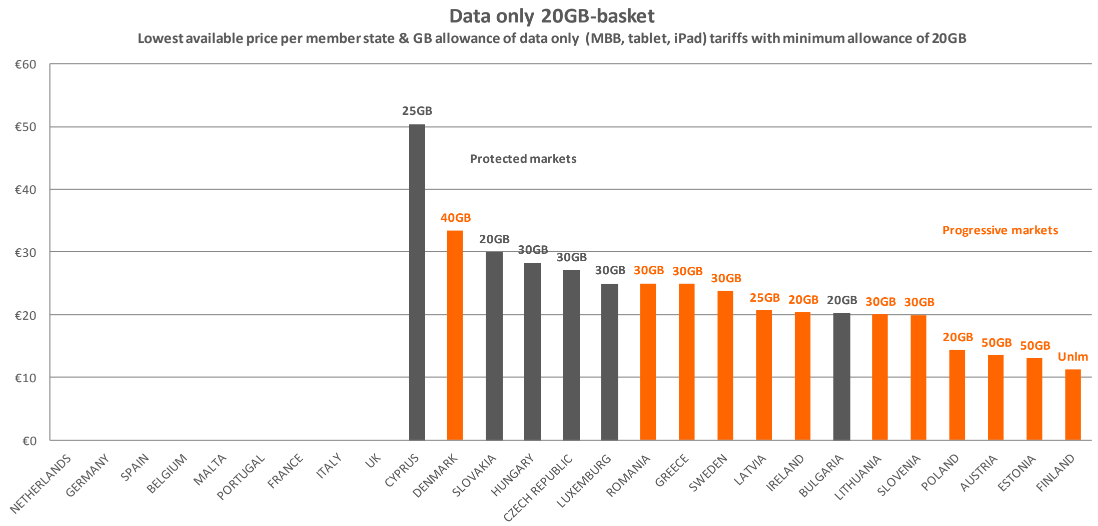
Source: Rewheel analysis

Exhibit 40 Data only 10GB-basket | Member state view



Source: Rewheel analysis

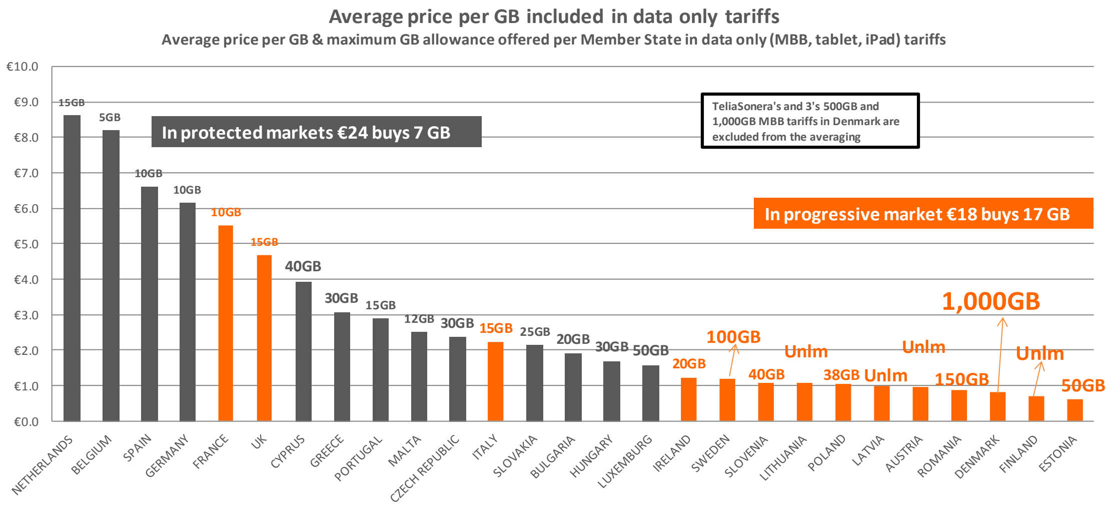
Exhibit 41 Data only 20GB-basket | Member state view



Source: Rewheel analysis

The average price per GB included in data only tariffs in EU27 member states is presented in Exhibit 42 below.

Exhibit 42 Average price per GB included in data only tariffs | Member state view

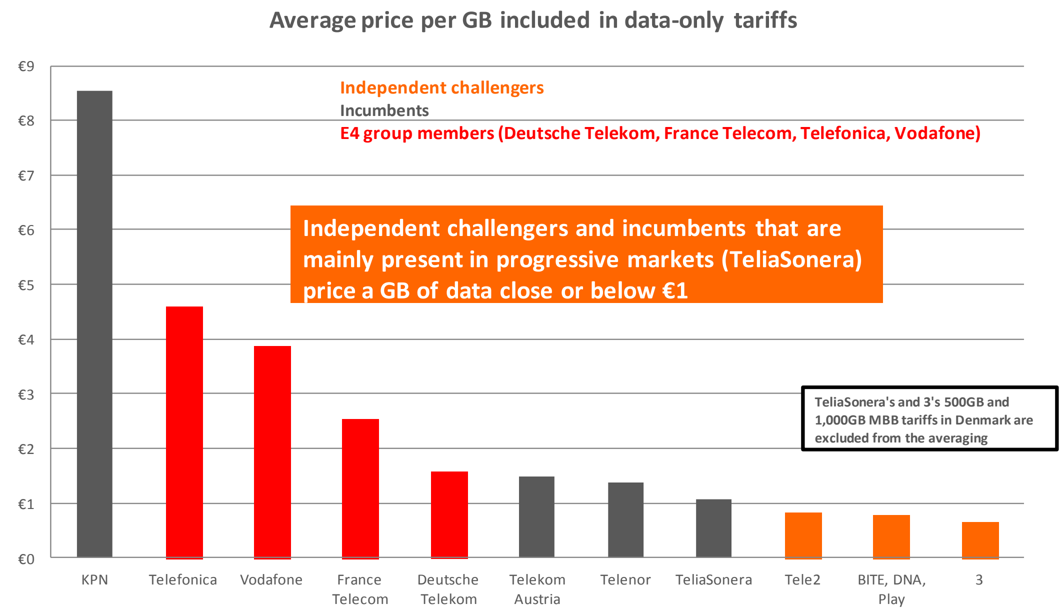


Source: Rewheel analysis

As it can be seen above in 11 progressive member state markets the average price per GB included in data only tariffs is close to or below €1. On the other side, in protected markets where E4 group members and other incumbents have vested fixed broadband interest (e.g. Netherlands, Belgium, Spain and Germany) the average price per GB is up to 14 times higher.

In progressive markets (e.g. Estonia, Finland and Denmark) a GB of mobile broadband data volume costs on average up to 14 times cheaper than in the Netherlands which is the most expensive market in the EU for mobile broadband.

Exhibit 43 Average GB price included in data-only tariffs | MNO Group view



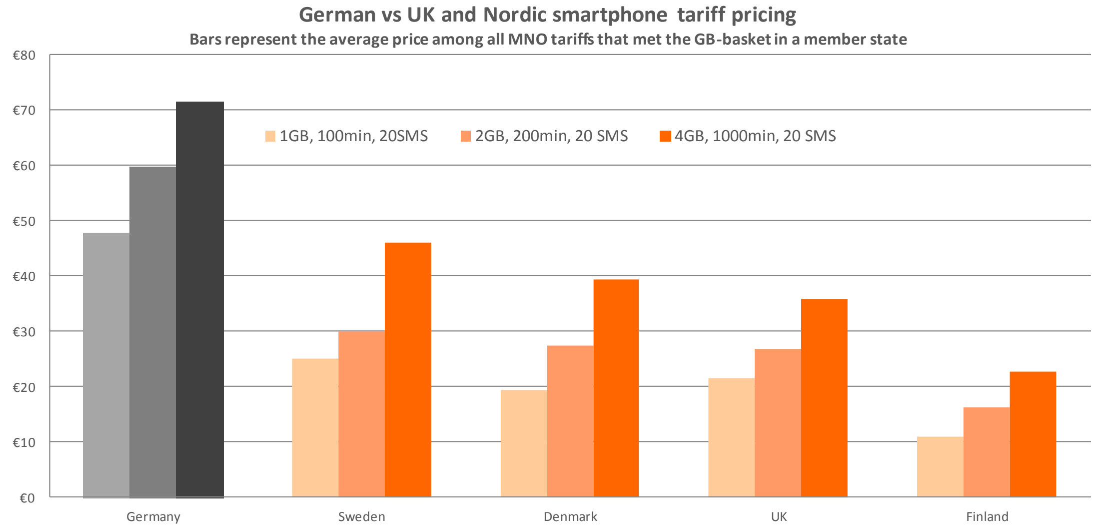
Source: Rewheel analysis

Independent challengers (e.g. Tele2 and 3) price a GB of mobile broadband data volume on average up to 13 times cheaper than KPN, Telefonica, Vodafone, France Telecom or Deutsche Telekom.

10 Germany, the blueprint of a consolidated EU single communication market?

Germany, the member state with the largest internal market, has one of the highest consumer smartphone tariff prices, several times higher than in the UK and other progressive member states like Finland, Denmark or Sweden, as presented in Exhibit 44 below.

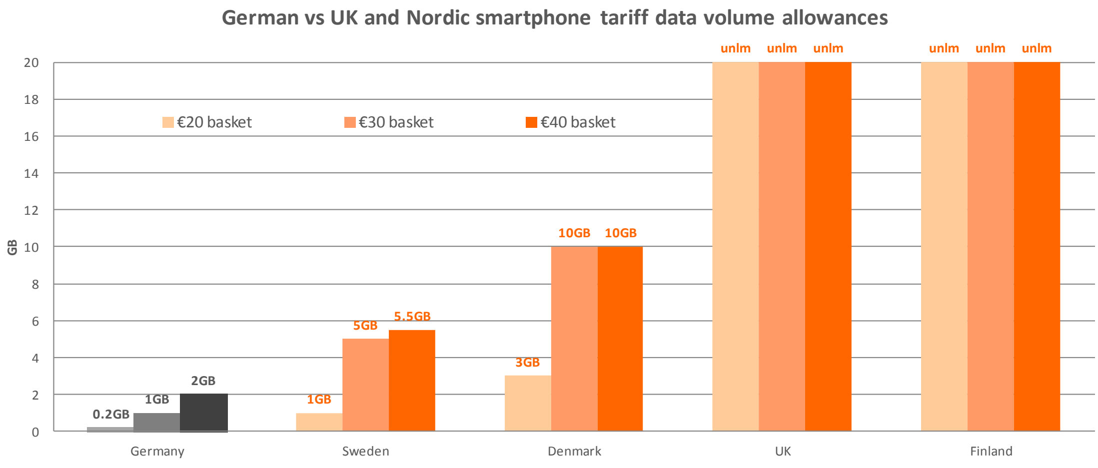
Exhibit 44 German vs UK and Nordic smartphone tariff pricing



Source: Rewheel analysis

As seen in Exhibit 45, in terms of smartphone tariff GB allowances, the difference is even more striking: €20 buys as few as 0.2GB of smartphone data allowance in Germany, while in the UK and in many other – small – member states MNOs offer several tens of GBs and even unlimited volume for this price level. So in GB allowance terms Germany has one of the most restrictive smartphone tariff offers in Europe i.e. up to 100 times more restrictive than in many progressive member states.

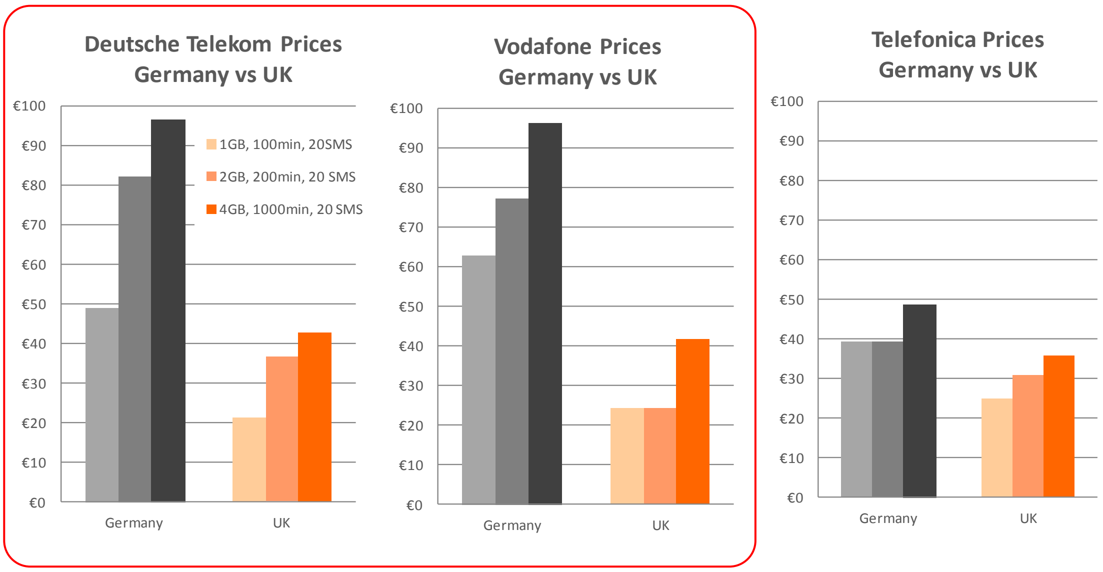
Exhibit 45 German vs UK and Nordic smartphone tariff data volume allowances



Source: Rewheel analysis

What makes Germany's case even more disturbing is that its two largest mobile operators, Deutsche Telekom and Vodafone are charging double as much for the same smartphone tariff plans than what they charge in the UK (where an independent challenger is present), as shown in Exhibit 46 below.

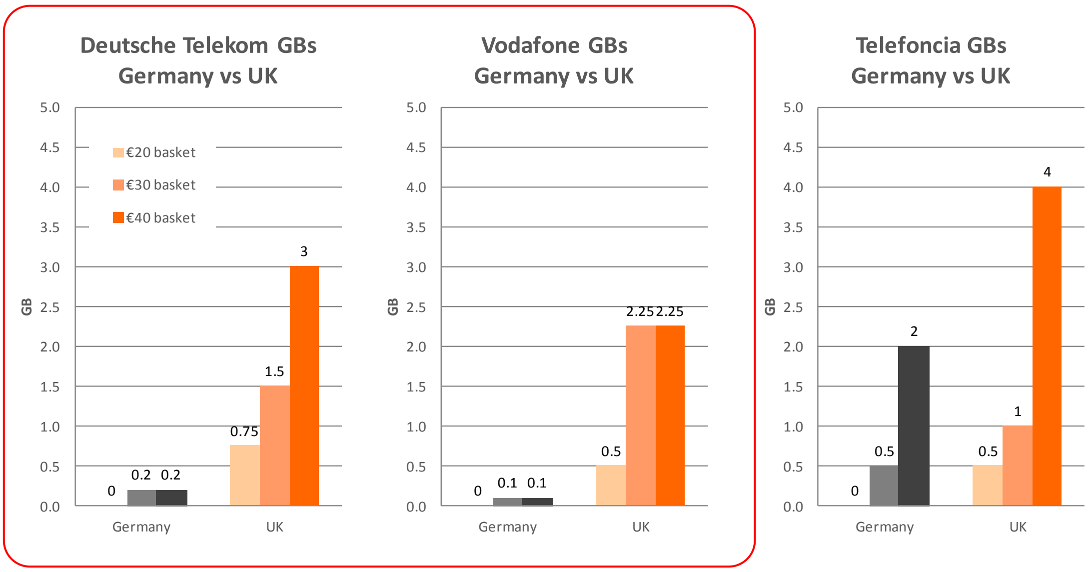
Exhibit 46 Smartphone basket prices of Deutsche Telekom, Vodafone and Telefonica in Germany vs UK



Source: Rewheel analysis

The difference becomes even more striking if the German and the UK smartphone tariffs are compared from the gigabyte allowances point of view, as presented in Exhibit 47. While the price differences were double, in GB allowances we can observe up to 22 times differences.

Exhibit 47 Smartphone tariff GB allowanced of Deutsche Telekom, Vodafone and Telefonica in Germany vs UK

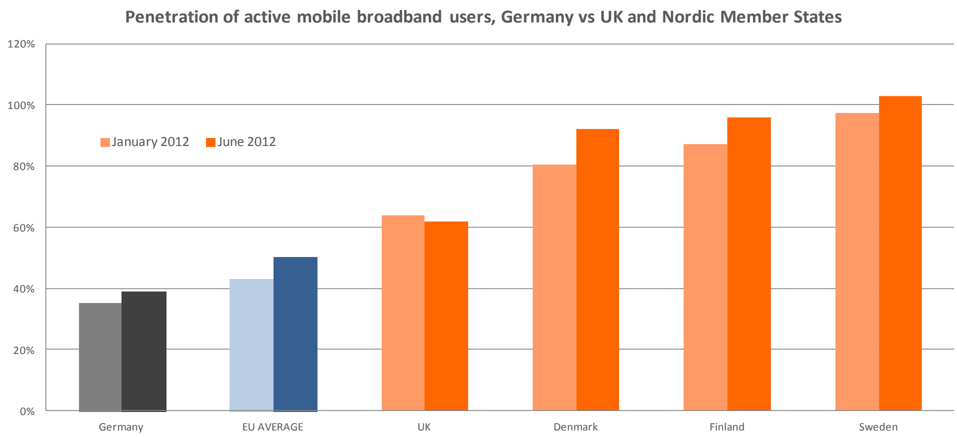


Source: Rewheel analysis

High prices and restrictive GB allowances suppress mobile internet adoption in Germany!

Apparently, the high smartphone tariff prices and very restrictive data volumes have adversely impacted the competitiveness of Germany's digital economy. As Exhibit 48 below shows, the penetration of active mobile internet users in Germany is below EU Average, well below UK and some half of the level measured in Denmark, Finland and Sweden.

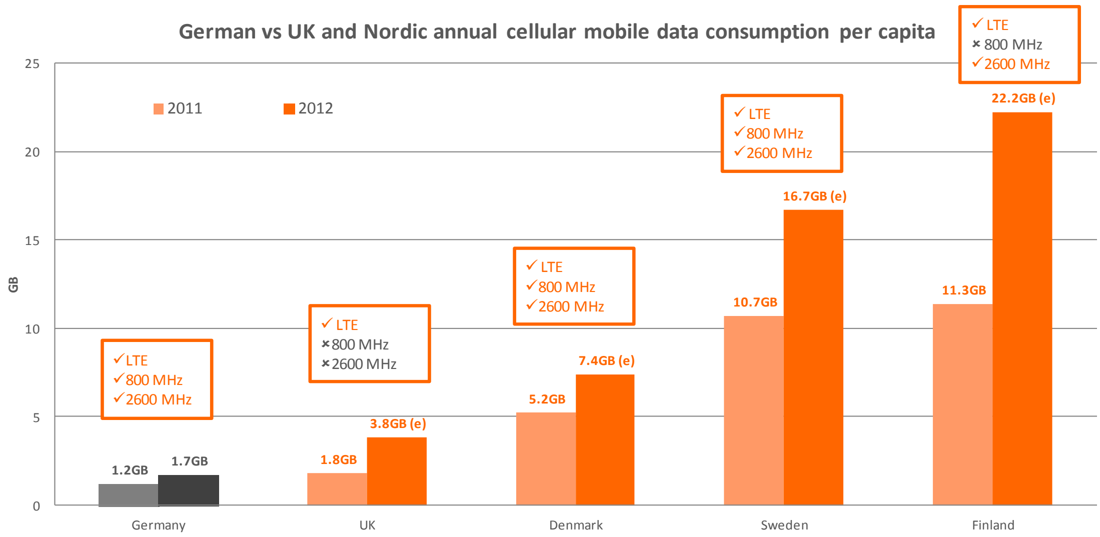
Exhibit 48 Penetration of active mobile broadband users (including smartphones and data only devices) in Germany versus UK and Nordic member states



Source: EU Commission

The high smartphone tariff prices and restrictive data volume allowances have not only led to below average penetration, but also to strikingly low mobile data volume consumption. In Exhibit 49 below we compared the utilisation of Germany's radio spectrum resources, expressed as average mobile data volume consumption per capita, with UK and the three most progressive Nordic member states. Compared to Finland and Sweden, we can observe a striking ten times difference (Note: in Finland the 800 MHz digital divide frequencies have not yet been assigned). In the UK the per capita consumption is double compared to Germany, despite the fact that none of the UK operators have taken into use the 800 and 2600 MHz frequency bands yet. In Germany, all EU-harmonised frequency bands (800, 900, 1800, 2100, 2600 MHz) have been fully allocated to the four MNOs since the 2010 "BIG BANG" spectrum auctions.

Exhibit 49 Utilisation of radio spectrum resources, expressed as annual mobile data consumption per capita, Germany vs UK and Nordic member states



Source: Regulator websites, Rewheel analysis and estimations

So what is going on in Germany?

Germany has four financially strong mobile network operators: Deutsche Telekom, Vodafone, Telefonica and E-Plus, the latter one belonging to the Dutch KPN Group. One would expect these "European Champions", especially the ones with currently lower market shares, that is Telefonica and E-Plus, to look at the smartphone centric market transformation as an opportunity to secure or improve their market share, especially in light of the fact that according to Exhibit 49 they should have plenty of unused radio spectrum capacities to make their smartphone offers more consumer appealing (see our analysis[13] published after the 2010 German BIG BANG auction arguing that building on the favourable spectrum capacity positions outcome and after the modernisation of its full network infrastructure E-Plus had the chance to gain substantial market share by implementing an "urban capacity challenger" strategy).

What could hold the two smaller operators back from increasing spectrum utilisation?

All four MNOs have very strong dependency on historic voice and SMS revenue streams (subject to cannibalization risk) and either locally or through their international parent companies strong interests in EU-wide fixed broadband investments. Furthermore, all four are core members of ETNO, the incumbent telecom operators' lobby organization, which has been heavy lobbying for public funding of EU wide investments into widening the reach of high-speed broadband infrastructure[14] and for allowing consolidation in four player markets like Germany, Italy and Spain.

Considering the substantial fixed broadband interests that these operators have, a corporate strategy whereby they use all levers in their disposals to lower the drive of the mobile internet markets in order to protect the valuations of their fixed broadband assets in Germany, Netherlands and Spain makes sense. Apart from their fixed broadband assets, another key strategic strength at the disposal of these multinational incumbent telco groups is their "single key" influencing power on the EU level policy making. By successfully lobbying for a policy framework that favors "fixed mobile convergent" players as opposed to "mobile pure play" operators, they have good chances in winning EU and member state funds for expanding their fixed broadband infrastructures, in turn further cementing their dominant positions in the fixed broadband markets. And in their mobile markets too, if they succeed to convince policy makers and regulators to allow consolidation (i.e. elimination of independent challenger mobile operators in progressive markets) and prevent the entrance of new independent challengers (i.e. not reserving radio spectrum for potential new entrants on the radio spectrum auctions) into their territories.

[13] http://www.rewheel.fi/insights_11.php

[14] http://www.bloomberg.com/video/how-do-e-u-budget-cuts-impact-telecom-broadband-mSuYfmzKQResXGgtMjfgoA.html

The blueprint of the consolidated EU single telecoms market? We hope not!

Undoubtedly, multinational incumbent telco groups and their investors have good reasons to lobby EU' decision makers to enact friendly policies that will protect their inherited oligopolistic high profit margins. But will the German model serve the best interest of consumers and business in other EU member states? In Rewheel's opinion clearly: NOT. As summarised in Exhibit 50 below, enforcing an overly "convergent player friendly" German model would severely limit competition in the mobile markets, leading to high prices for consumers and the internet of mobile things and sever under-utilisation of the member states' scarce national radio spectrum resources.

Exhibit 50 Comparison of the German model vs UK and the small Nordic member states

	Germany	UK	Nordic Member States
Scale	Large (82m pop)	Large (63m pop)	Small-medium (5-10m pop)
Number of MNOs	4	4	3 or 4
Presence of large incumbent "European Champions"	DT,VF,TE,KPN	VF, DT-FT	none
Presence of independent challangers	none	Three	Three, Tele2, DNA
Smartphone tariffs	Uncompetitive	Competitive	Very competitive
Smartphone data volume allowances	Very restrictive	Very large	Very large
Mobile internet penetration	Below EU average	Well above EU average	Nearly 100%
Radiospectrum allocated to MNOs	Fully	Partly	Partly
Mobile data consumption per capita	Very low	High	Very high
Utilisation of scarce national radio spectrum assets	**Extremely low**	**High**	**Very high**

Source: Rewheel analysis

Collusion concerns?

Germany's old 900 MHz and 1800 MHz radio spectrum consessions are expiring in 2016[15] and according to recent press articles the four incumbent oparators forecast no excess demand for spectrum capacities in these bands. Rewheel was really surprised on this position for two reasons.

Firstly, simply because based on the skyrocketing mobile data consumption evidenced in many other member states it seems highly unlikely that in Germany no excess spectrum demand will arise in the next 15 to 20 years. Unless of course, as suspected by the German Federeal Cartel office and reported by Der Spiegel[16], if operators reached some sort of an understanding to avoid the expensive auction. In the absence of such alleged understanding, operators in other EU markets bidded competitively (UK, Ireland, Switzerland) and in some cases aggresively (Netherlands) to secure as much spectrum as economically possible so they can respond to a capacity war launched by the smallest operator in the market (e..g 3 UK unlimited smartphone data tariffs).

[15] http://www.telecompaper.com/news/e-plus-opposes-any-frequency-2016-auction--941580

[16] http://www.telecompaper.com/news/german-watchdog-probes-mobile-firms-over-frequencies-info--941585

Secondly, because back in 2011, E-Plus heavily lobbied to secure incremental sub 1 GHz spectrum holdings[17] and suddenly now after a strategic U-Turn, is arguing that the status quo concerning mobile telecoms frequency licences should be maintained at least until 2020.

Germany's strategic national interest: increase the utilisation of scarce national spectrum resources rather than let the current mobile players hoard spectrum in order to protect their EU wide fixed asset interests!

One thing is clear: for reasons we do not understand none of the four mobile operators that are currenly present in Germany see business justification for the next 15 years or so to substantially increase the share of their own spectrum holdings. That implies that they see no business value in investing into more capacity that would enable them to produce more cost efficiently gigabytes, voice minutes and SMSs. In other words none of the four incumbent's strategic interests is to maximize the economocally viable utilisation of Germany's national radio frequency assets. Therefore, the only reasonable option left for the German state to encourage and support healthy competition in the production and supply of mobile data (that drives the growth of the digital economy) is to test the appetite of the markets for a new operator entry. Such entry will make sense if the operator/investor's business models and ambitions *are* aligned with the German state's strategic interests in driving the growth of the digital economy by increasing the production efficinecy and lowering the supply cost of mobile data.

[17] http://www.telecompaper.com/news/e-plus-criticises-900-mhz-redistribution-study--796201

11 List of exhibits

Annex 1 – MNO tariff names

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
1	AT	PROG	INCU	Telekom Austria	A1 Basic SIM Pur
2	AT	PROG	INCU	Telekom Austria	A1 Go! S
3	AT	PROG	INCU	Telekom Austria	A1 Go! M
4	AT	PROG	INCU	Telekom Austria	A1 Go! L
5	AT	PROG	INCU	Telekom Austria	A1 Mobil Breitband 1
6	AT	PROG	INCU	Telekom Austria	A1 Mobil Breitband 2
7	AT	PROG	INCU	Telekom Austria	A1 Mobil Breitband 3
8	AT	PROG	INCU	Telekom Austria	A1 Mobil Breitband 4G/LTE
9	AT	PROG	E4	Deutsche Telecom	ALL Inclusive 1000
10	AT	PROG	E4	Deutsche Telecom	ALL Inclusive 1000 + Unlimited Internet
11	AT	PROG	E4	Deutsche Telecom	ALL Inclusive 1000 + Unlimited Internet Plus
12	AT	PROG	E4	Deutsche Telecom	ALL Inclusive 1000 + Unlimited Internet Max
13	AT	PROG	E4	Deutsche Telecom	ALL INCLUSIVE INTERNET 3G
14	AT	PROG	E4	Deutsche Telecom	ALL INCLUSIVE INTERNET
15	AT	PROG	E4	Deutsche Telecom	ALL INCLUSIVE INTERNET PLUS
16	AT	PROG	E4	Deutsche Telecom	ALL INCLUSIVE INTERNET LTE
17	AT	PROG	CHAL	3	3Single
18	AT	PROG	CHAL	3	Superphone L
19	AT	PROG	CHAL	3	Superphone XL
20	AT	PROG	CHAL	3	Superphone XXL
21	AT	PROG	CHAL	3	Superphone XXL + Doppelte Highspeed GB
22	AT	PROG	CHAL	3	i-Pad Tarife
23	AT	PROG	CHAL	3	i-Pad Tarife
24	AT	PROG	CHAL	3	3Super SIM Data 1GB
25	AT	PROG	CHAL	3	3Super SIM Data 10GB
26	AT	PROG	CHAL	3	3Super SIM Data Super Flat
27	AT	PROG	CHAL	3	3Super SIM Data Super Speed Flat
28	FI	PROG	INCU	Elisa	Reilu 2M
29	FI	PROG	INCU	Elisa	Reilu 2M
30	FI	PROG	INCU	Elisa	Reilu 2M
31	FI	PROG	INCU	Elisa	Reilu 2M
32	FI	PROG	INCU	Elisa	Reilu 3G jopa 21M
33	FI	PROG	INCU	Elisa	MegaReilu 3G
34	FI	PROG	INCU	Elisa	DNA Veppi
35	FI	PROG	INCU	Elisa	Mobiililaajakaista 4G
36	FI	PROG	INCU	Elisa	Mobiililaajakaista 4G Super
37	FI	PROG	INCU	TeliaSonera	Startti Plus
38	FI	PROG	INCU	TeliaSonera	Näppärä
39	FI	PROG	INCU	TeliaSonera	Näppärä Plus Netti
40	FI	PROG	INCU	TeliaSonera	Surffilauta 3G
41	FI	PROG	INCU	TeliaSonera	Fiksu
42	FI	PROG	INCU	TeliaSonera	Super
43	FI	PROG	INCU	TeliaSonera	Surffilauta 4G
44	FI	PROG	INCU	TeliaSonera	Liikkuva laajakaista Perus
45	FI	PROG	INCU	TeliaSonera	Liikkuva laajakaista Plus
46	FI	PROG	INCU	TeliaSonera	Liikkuva laajakaista Teho
47	FI	PROG	CHAL	DNA	Älypaketti
48	FI	PROG	CHAL	DNA	Älypaketti
49	FI	PROG	CHAL	DNA	Älypaketti
50	FI	PROG	CHAL	DNA	Super Älypaketti
51	FI	PROG	CHAL	DNA	DNA Veppi
52	FI	PROG	CHAL	DNA	DNA Veppi

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
53	EL	PROT	E4	Deutsche Telecom	COSMOTE ΑΠΕΡΙΟΡΙΣΤΑ 35
54	EL	PROT	E4	Deutsche Telecom	COSMOTE ECONOMY 20 + COSMOTE Internet Monthly Pass 750
55	EL	PROT	E4	Deutsche Telecom	COSMOTE ECONOMY 20 + COSMOTE Internet Monthly Pass 1,5GB
56	EL	PROT	E4	Deutsche Telecom	COSMOTE ECONOMY 30 + COSMOTE Internet Monthly Pass 3GB
57	EL	PROT	E4	Deutsche Telecom	COSMOTE ΑΠΕΡΙΟΡΙΣΤΑ 70 + COSMOTE Internet Monthly Pass 1.5GB
58	EL	PROT	E4	Deutsche Telecom	COSMOTE ΑΠΕΡΙΟΡΙΣΤΑ 100 + COSMOTE Internet Monthly Pass 3GB
59	EL	PROT	E4	Deutsche Telecom	COSMOTE Data 2GB
60	EL	PROT	E4	Deutsche Telecom	COSMOTE Internet On The Go 1GB
61	EL	PROT	E4	Deutsche Telecom	COSMOTE Internet On The Go 2GB
62	EL	PROT	E4	Deutsche Telecom	COSMOTE Internet On The Go 3GB
63	EL	PROT	E4	Deutsche Telecom	COSMOTE Internet On The Go 5GB
64	EL	PROT	E4	Deutsche Telecom	COSMOTE Internet On The Go 10GB
65	EL	PROT	E4	Deutsche Telecom	COSMOTE Internet On The Go 20GB
66	EL	PROT	E4	Vodafone	Unlimited 35
67	EL	PROT	E4	Vodafone	Red 1
68	EL	PROT	E4	Vodafone	Προς όλους 200 + Internet στο κινητό σου Unlimited and 20 SMSs
69	EL	PROT	E4	Vodafone	Προς όλους 400 + Internet στο κινητό σου Unlimited and 100mins
70	EL	PROT	E4	Vodafone	Red 3
71	EL	PROT	E4	Vodafone	Vodafone Mobile Broadband
72	EL	PROT	E4	Vodafone	Vodafone Mobile Broadband
73	EL	PROT	E4	Vodafone	Vodafone Mobile Broadband
74	EL	PROT	E4	Vodafone	Vodafone Mobile Broadband
75	EL	PROT	INCU	Wind Hellas	Wind to ALL 40
76	EL	PROT	INCU	Wind Hellas	Wind to ALL 50
77	EL	PROT	INCU	Wind Hellas	Wind to ALL 40 + Mobile Internet 1500MB
78	EL	PROT	INCU	Wind Hellas	Wind to ALL 40 + Mobile Internet 1500MB With 1000MB at €0.1024/MB
79	EL	PROT	INCU	Wind Hellas	Wind to ALL 50 + Mobile Internet 1500MB With 1500MB at €0.1024/MB
80	EL	PROT	INCU	Wind Hellas	WIND Mobile Broadband Control
81	EL	PROT	INCU	Wind Hellas	WIND Mobile Broadband Control
82	EL	PROT	INCU	Wind Hellas	WIND Mobile Broadband Control
83	EE	PROG	INCU	TeliaSonera	MinuEMT
84	EE	PROG	INCU	TeliaSonera	MinuEMT
85	EE	PROG	INCU	TeliaSonera	MinuEMT
86	EE	PROG	INCU	TeliaSonera	MinuEMT
87	EE	PROG	INCU	TeliaSonera	MinuEMT
88	EE	PROG	INCU	TeliaSonera	Internet arvutis XS
89	EE	PROG	INCU	TeliaSonera	Internet arvutis S
90	EE	PROG	INCU	TeliaSonera	Internet arvutis M+4G
91	EE	PROG	INCU	TeliaSonera	Internet arvutis L+4G
92	EE	PROG	INCU	TeliaSonera	Internet arvutis XL+4G
93	EE	PROG	CHAL	Tele2	Nutipakett 4.99 and 200mins
94	EE	PROG	CHAL	Tele2	Nutipakett 7.99
95	EE	PROG	CHAL	Tele2	Nutipakett 7.99 + Internet Mobiilis Large
96	EE	PROG	CHAL	Tele2	Nutipakett 7.99 + Internet Mobiilis Extra Large
97	EE	PROG	CHAL	Tele2	Internet Avrutis Small
98	EE	PROG	CHAL	Tele2	Internet Avrutis Medium
99	EE	PROG	CHAL	Tele2	Internet AvrutisLarge
100	EE	PROG	CHAL	Tele2	Internet Avrutis Extra Large
101	EE	PROG	CHAL	Tele2	Tele2 4G Small
102	EE	PROG	CHAL	Tele2	Tele2 4G Medium
103	EE	PROG	CHAL	Tele2	Tele2 4G Large
104	EE	PROG	INCU	Elisa	Nutikalt piiramatud kõnepaketid
105	EE	PROG	INCU	Elisa	Nutikalt piiramatud kõnepaketid
106	EE	PROG	INCU	Elisa	Nutikalt piiramatud kõnepaketid
107	EE	PROG	INCU	Elisa	Nutikalt piiramatud kõnepaketid
108	EE	PROG	INCU	Elisa	MiNT arvutis
109	EE	PROG	INCU	Elisa	MiNT arvutis
110	EE	PROG	INCU	Elisa	MiNT arvutis
111	EE	PROG	INCU	Elisa	MiNT arvutis

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
112	CZ	PROT	E4	Deutsche Telecom	S nami 590
113	CZ	PROT	E4	Deutsche Telecom	S nami sit nesit
114	CZ	PROT	E4	Deutsche Telecom	S nami sit nesit and Mobilní internet 1 GB
115	CZ	PROT	E4	Deutsche Telecom	S nami sit nesit and Mobilní internet 3 GB
116	CZ	PROT	E4	Deutsche Telecom	Pro tablet
117	CZ	PROT	E4	Deutsche Telecom	Pro tablet
118	CZ	PROT	E4	Deutsche Telecom	Pro notebook
119	CZ	PROT	E4	Deutsche Telecom	Pro notebook
120	CZ	PROT	E4	TelefonicaO2	Free O2 Plus 1GB
121	CZ	PROT	E4	TelefonicaO2	Free CZ 3GB
122	CZ	PROT	E4	TelefonicaO2	Free CZ 10GB
123	CZ	PROT	E4	TelefonicaO2	Mobilní internet M
124	CZ	PROT	E4	TelefonicaO2	Mobilní internet L
125	CZ	PROT	E4	TelefonicaO2	Mobilní internet XL
126	CZ	PROT	E4	Vodafone	Fer tarif 599
127	CZ	PROT	E4	Vodafone	Neomezené volání do všech sítí
128	CZ	PROT	E4	Vodafone	Neomezené volání do všech sítí and 1x600 MB dat zaplatíte 201,67 Kč včetně DPH
129	CZ	PROT	E4	Vodafone	Neomezené volání do všech sítí and 3x600 MB dat zaplatíte 201,67 Kč včetně DPH
130	CZ	PROT	E4	Vodafone	Neomezené volání do všech sítí and 4x600 MB dat zaplatíte 201,67 Kč včetně DPH
131	CZ	PROT	E4	Vodafone	Neomezené volání do všech sítí and 6x600 MB dat zaplatíte 201,67 Kč včetně DPH
132	CZ	PROT	E4	Vodafone	Internet v tabletu Premium
133	CZ	PROT	E4	Vodafone	Internet do notebooku Připojení pro notebook super
134	CZ	PROT	E4	Vodafone	Internet do notebooku Připojení pro notebook premium
135	HU	PROT	E4	Deutsche Telecom	Mozaik XS with 100 mins and 10 SMSs package and 10 SMSs extra
136	HU	PROT	E4	Deutsche Telecom	Mozaik S with 30 SMSs package
137	HU	PROT	E4	Deutsche Telecom	Mozaik S with 30 SMSs package + GO! Net XL
138	HU	PROT	E4	Deutsche Telecom	Mozaik L with 100 SMSs package + Net&Roll 1GB LTE
139	HU	PROT	E4	Deutsche Telecom	Mozaik XL with 200 SMSs package + Net&Roll 1GB LTE
140	HU	PROT	E4	Deutsche Telecom	Mozaik XXL with 1000mins 500 SMSs package + Net&Roll 1GB LTE
141	HU	PROT	E4	Deutsche Telecom	Net & Roll XS
142	HU	PROT	E4	Deutsche Telecom	ikon Net 2 GB
143	HU	PROT	E4	Deutsche Telecom	Net & Roll S
144	HU	PROT	E4	Deutsche Telecom	Net & Roll M
145	HU	PROT	E4	Deutsche Telecom	Net & Roll L
146	HU	PROT	INCU	Telenor	Smarttarifa Extra 1 with 100 offnet minutes and 20 SMS
147	HU	PROT	INCU	Telenor	Smarttarifa Extra 2 with 100 offnet minutes and 20 SMS
148	HU	PROT	INCU	Telenor	Smarttarifa Extra 3 with 200mins and 20 SMS
149	HU	PROT	INCU	Telenor	Smarttarifa Extra 4 with 500mins and 20 SMS
150	HU	PROT	INCU	Telenor	Smarttarifa Extra 5 and 1000mins and 20 SMS
151	HU	PROT	INCU	Telenor	Start
152	HU	PROT	INCU	Telenor	Active
153	HU	PROT	INCU	Telenor	Medium
154	HU	PROT	INCU	Telenor	Heavy
155	HU	PROT	INCU	Telenor	Pro
156	HU	PROT	E4	Vodafone	Vodafone Matrix 1 with 100mins
157	HU	PROT	E4	Vodafone	Vodafone Matrix 2
158	HU	PROT	E4	Vodafone	Vodafone Matrix 4
159	HU	PROT	E4	Vodafone	Vodafone Matrix 5
160	HU	PROT	E4	Vodafone	Vodafone Red Standard SIM only
161	HU	PROT	E4	Vodafone	Vodafone Red Super
162	HU	PROT	E4	Vodafone	Internet for your iPad
163	HU	PROT	E4	Vodafone	MobilNet 7
164	HU	PROT	E4	Vodafone	MobilNet 14
165	HU	PROT	E4	Vodafone	MobilNet 21

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
166	IT	PROG	INCU	Telecom Italia	Tutto Compreso 300
167	IT	PROG	INCU	Telecom Italia	Tutto Compreso 300 and Opzione Internet Plus
168	IT	PROG	INCU	Telecom Italia	Tutto Compreso 700 and Tutto Smartphone and Opzione Internet Plus
169	IT	PROG	INCU	Telecom Italia	Tutto Compreso 1500 and Tutto Smartphone nd Opzione Internet Plus
170	IT	PROG	INCU	Telecom Italia	Internet Start
171	IT	PROG	INCU	Telecom Italia	Internet Large
172	IT	PROG	INCU	Telecom Italia	Internet 42.2
173	IT	PROG	INCU	Telecom Italia	Internet 4G
174	IT	PROG	E4	Vodafone	Smart 500
175	IT	PROG	E4	Vodafone	Smart 500 plus 500MB
176	IT	PROG	E4	Vodafone	Smart 500 plus 2GB
177	IT	PROG	E4	Vodafone	Relax Complete SIM only
178	IT	PROG	E4	Vodafone	Internet GO 1 Anno 1GB
179	IT	PROG	E4	Vodafone	Internet GO 1 Anno 5GB
180	IT	PROG	CHAL	Wind	All Inclusive Smart
181	IT	PROG	CHAL	Wind	All Inclusive Silver
182	IT	PROG	CHAL	Wind	All Inclusive Smart and 1GB
183	IT	PROG	CHAL	Wind	All Inclusive Silver and 1GB
184	IT	PROG	CHAL	Wind	INTERNET NO STOP
185	IT	PROG	CHAL	Wind	MEGA UNLIMITED
186	IT	PROG	CHAL	3	Top SIM 400
187	IT	PROG	CHAL	3	Top SIM 400 and Super Internet per Smartphone
188	IT	PROG	CHAL	3	Top SIM 800 and Super Internet per Smartphone
189	IT	PROG	CHAL	3	Top SIM 1600 and Super Internet per Smartphone
190	IT	PROG	CHAL	3	Top SIM 3000
191	IT	PROG	CHAL	3	Web Light
192	IT	PROG	CHAL	3	Web Senza Limiti
193	UK	PROG	E4	Deutsche Telecom	Pay monthly SIM only plans
194	UK	PROG	E4	Deutsche Telecom	Pay monthly SIM only plans
195	UK	PROG	E4	Deutsche Telecom	Pay monthly SIM only plans
196	UK	PROG	E4	Deutsche Telecom	26 month 4GEE
197	UK	PROG	E4	Deutsche Telecom	27 month 4GEE
198	UK	PROG	E4	Deutsche Telecom	28 month 4GEE
199	UK	PROG	E4	Deutsche Telecom	Mobile broadband SIM only
200	UK	PROG	E4	Deutsche Telecom	Mobile broadband SIM only
201	UK	PROG	E4	Deutsche Telecom	Mobile broadband SIM only
202	UK	PROG	E4	TelefonicaO2	Simplicity
203	UK	PROG	E4	TelefonicaO2	Simplicity
204	UK	PROG	E4	TelefonicaO2	Simplicity
205	UK	PROG	E4	TelefonicaO2	Simplicity
206	UK	PROG	E4	TelefonicaO2	Simplicity and bolt on double your data
207	UK	PROG	E4	TelefonicaO2	Simplicity for iPad
208	UK	PROG	E4	TelefonicaO2	Simplicity for iPad
209	UK	PROG	E4	Vodafone	Vodafone Red SIM only 12 months
210	UK	PROG	E4	Vodafone	Vodafone Red SIM only 12 months
211	UK	PROG	E4	Vodafone	Vodafone Red SIM only 12 months + Vodafone Boost
212	UK	PROG	E4	Vodafone	Vodafone Red SIM only 12 months
213	UK	PROG	E4	Vodafone	Vodafone Red SIM only 12 months + Vodafone Boost
214	UK	PROG	E4	Vodafone	I-Pad on SIM only
215	UK	PROG	E4	Vodafone	I-Pad on SIM only
216	UK	PROG	E4	Vodafone	SIM only internet plan
217	UK	PROG	E4	Vodafone	SIM only internet plan
218	UK	PROG	CHAL	3	Essential Internet SIM 200 1 2months
219	UK	PROG	CHAL	3	Ultimate Internet SIM 200 1 2 months
220	UK	PROG	CHAL	3	Ultimate Internet SIM 600 12 months
221	UK	PROG	CHAL	3	The One Plan 12 Month SIM Only
222	UK	PROG	CHAL	3	Broadband 1GB
223	UK	PROG	CHAL	3	Broadband 15GB 24 month

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
224	NL	PROT	INCU	KPN	Stel je abonnement samen
225	NL	PROT	INCU	KPN	Stel je abonnement samen
226	NL	PROT	INCU	KPN	Stel je abonnement samen
227	NL	PROT	INCU	KPN	Stel je abonnement samen
228	NL	PROT	INCU	KPN	Stel je abonnement samen
229	NL	PROT	INCU	KPN	Stel je abonnement samen
230	NL	PROT	INCU	KPN	Stel je mobiele internet abonnement samen
231	NL	PROT	INCU	KPN	Stel je mobiele internet abonnement samen
232	NL	PROT	INCU	KPN	Stel je mobiele internet abonnement samen
233	NL	PROT	E4	Vodafone	SIM only
234	NL	PROT	E4	Vodafone	Red Essential SIM only
235	NL	PROT	E4	Vodafone	Red SIM only
236	NL	PROT	E4	Vodafone	Red Super only
237	NL	PROT	E4	Vodafone	Tablet Sim Only Start
238	NL	PROT	E4	Vodafone	Tablet Sim Only Basis
239	NL	PROT	E4	Vodafone	Mobiel Breedband Start
240	NL	PROT	E4	Vodafone	Mobiel Breedband Basis
241	NL	PROT	E4	Vodafone	Mobiel Breedband Extra
242	NL	PROT	E4	Deutsche Telecom	Smart Plus 150
243	NL	PROT	E4	Deutsche Telecom	Smart Plus 250
244	NL	PROT	E4	Deutsche Telecom	i-Smart 150 SIM only
245	NL	PROT	E4	Deutsche Telecom	i-Smart 300 SIM only and Onbeperkt Internet Voordeelbundel
246	NL	PROT	E4	Deutsche Telecom	i-Smart 500 SIM only Onbeperkt Internet
247	NL	PROT	E4	Deutsche Telecom	i-Smart 750 SIM only Onbeperkt Bel & Sms and Onbeperkt Internet
248	NL	PROT	E4	Deutsche Telecom	Internet Standaard
249	NL	PROT	E4	Deutsche Telecom	Internet Extra
250	NL	PROT	E4	Deutsche Telecom	Internet Maximaal

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
251	SK	PROT	E4	France Telecom	WOW 100mins plus 70SMS package and internetu v mobile start
252	SK	PROT	E4	France Telecom	WOW 100mins plus 70SMS package and internetu v mobile Klasik
253	SK	PROT	E4	France Telecom	WOW 200mins plus 70SMS package and internetu v mobile Klasik
254	SK	PROT	E4	France Telecom	WOW 200mins plus 70SMS package and internetu v mobile Premium
255	SK	PROT	E4	France Telecom	WOW 200mins plus 70SMS package and internetu v mobile Premium
256	SK	PROT	E4	France Telecom	Mobilný internet Start
257	SK	PROT	E4	France Telecom	Mobilný internet Klasik
258	SK	PROT	E4	France Telecom	Mobilný internet Premium
259	SK	PROT	E4	France Telecom	Mobilný internet Extra
260	SK	PROT	E4	France Telecom	Mobilný internet Ultra
261	SK	PROT	E4	Deutsche Telecom	Happy S
262	SK	PROT	E4	Deutsche Telecom	Happy M
263	SK	PROT	E4	Deutsche Telecom	Happy L
264	SK	PROT	E4	Deutsche Telecom	Happy XL
265	SK	PROT	E4	Deutsche Telecom	Happy XL + Neobmedzený internet v mobile
266	SK	PROT	E4	Deutsche Telecom	Mobilný internet 500
267	SK	PROT	E4	Deutsche Telecom	Mobilný internet 200
268	SK	PROT	E4	Deutsche Telecom	Mobilný internet 5000
269	SK	PROT	E4	Deutsche Telecom	Mobilný internet 10000
270	SK	PROT	E4	Deutsche Telecom	Mobilný internet 200000
271	SK	PROT	E4	TelefonicaO2	O2 Paušál
272	SK	PROT	E4	TelefonicaO2	O2 Paušál
273	SK	PROT	E4	TelefonicaO2	O2 Paušál + Internet do mobilu
274	SK	PROT	E4	TelefonicaO2	O2 Paušál + 3 times restoration SMS
275	SK	PROT	E4	TelefonicaO2	Internet do notebooku
276	FR	PROG	E4	France Telecom	Origami Star
277	FR	PROG	E4	France Telecom	Origami Star
278	FR	PROG	E4	France Telecom	Origami Star
279	FR	PROG	E4	France Telecom	Origami Jet
280	FR	PROG	E4	France Telecom	forfaits Let's go pour clé internet
281	FR	PROG	E4	France Telecom	forfaits Let's go pour clé internet
282	FR	PROG	E4	France Telecom	forfaits Let's go pour clé internet
283	FR	PROG	CHAL	SFR	SÉRIE RED 24h/24
284	FR	PROG	CHAL	SFR	Carré 2h
285	FR	PROG	CHAL	SFR	SÉRIE RED 3Go
286	FR	PROG	CHAL	SFR	Carré 4Go
287	FR	PROG	CHAL	SFR	3GO
288	FR	PROG	CHAL	SFR	6GO
289	FR	PROG	CHAL	Bouygues Telecom	Relax 2h
290	FR	PROG	CHAL	Bouygues Telecom	Relax Unlimited
291	FR	PROG	CHAL	Bouygues Telecom	Smartphone 2GB
292	FR	PROG	CHAL	Bouygues Telecom	Smartphone 3GB
293	FR	PROG	CHAL	Bouygues Telecom	Smartphone Unlimited 24
294	FR	PROG	CHAL	Bouygues Telecom	FORFAIT INTERNET 500 MO
295	FR	PROG	CHAL	Bouygues Telecom	FORFAIT INTERNET 5 GO
296	FR	PROG	CHAL	Free Mobile	Forfait Free

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
297	IE	PROG	E4	Vodafone	MyWay Plus - SIM Only
298	IE	PROG	E4	Vodafone	MyWay Plus - SIM Only
299	IE	PROG	E4	Vodafone	MyWay Plus - SIM Only
300	IE	PROG	E4	Vodafone	MyWay Plus - SIM Only
301	IE	PROG	E4	Vodafone	Red Super
302	IE	PROG	E4	Vodafone	Occasional mobile broadband
303	IE	PROG	E4	Vodafone	Vodafone Mobile Broadband 1GB
304	IE	PROG	E4	Vodafone	Vodafone Performance Pro
305	IE	PROG	E4	Telefonica O2	O2 Choices SIM 500 12Mth
306	IE	PROG	E4	Telefonica O2	O2 Choices SIM 1200 12Mth
307	IE	PROG	E4	Telefonica O2	O2 Choices SIM 1200 12Mth
308	IE	PROG	E4	Telefonica O2	O2 Choices SIM 1200 12Mth
309	IE	PROG	E4	Telefonica O2	O2 Choices SIM 2000 12Mth
310	IE	PROG	E4	Telefonica O2	Mobile Broadband
311	IE	PROG	INCU	Eircom	Talk and text
312	IE	PROG	INCU	Eircom	Build your own plan
313	IE	PROG	INCU	Eircom	Build your own plan
314	IE	PROG	INCU	Eircom	Build your own plan
315	IE	PROG	INCU	Eircom	Build your own plan
316	IE	PROG	INCU	Eircom	20GB SIM only
317	IE	PROG	CHAL	3	Classic Flex Max
318	IE	PROG	CHAL	3	Super Flex Max
319	IE	PROG	CHAL	3	Mega Flex Max
320	IE	PROG	CHAL	3	3Broadband Light
321	IE	PROG	CHAL	3	3Broadband Active
322	IE	PROG	CHAL	3	3Broadband Pro

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
323	SE	PROG	INCU	TeliaSonera	Telia Mobil Rörlig
324	SE	PROG	INCU	TeliaSonera	Telia Mobil Total Liten
325	SE	PROG	INCU	TeliaSonera	Telia Mobil Total Melan
326	SE	PROG	INCU	TeliaSonera	Telia Mobil Dela
327	SE	PROG	INCU	TeliaSonera	Telia Mobilt bredband 2 GB
328	SE	PROG	INCU	TeliaSonera	Telia Mobilt bredband 4 GB
329	SE	PROG	INCU	TeliaSonera	Telia Mobilt bredband 6 GB
330	SE	PROG	INCU	TeliaSonera	Telia Mobilt bredband 8 GB
331	SE	PROG	INCU	TeliaSonera	Telia Mobilt bredband 10 GB
332	SE	PROG	CHAL	Tele2	Snakis Small
333	SE	PROG	CHAL	Tele2	Snakis Small
334	SE	PROG	CHAL	Tele2	Volym Låg + Mobilsurf Small
335	SE	PROG	CHAL	Tele2	Volym Mellan + Mobilsurf Small
336	SE	PROG	CHAL	Tele2	Volym Hög
337	SE	PROG	CHAL	Tele2	Mobilt Bredband Small
338	SE	PROG	CHAL	Tele2	Mobilt Bredband Medium
339	SE	PROG	CHAL	Tele2	Mobilt Bredband Large
340	SE	PROG	CHAL	Tele2	Mobilt Bredband XL
341	SE	PROG	CHAL	Tele2	Small
342	SE	PROG	CHAL	Tele2	Medium
343	SE	PROG	INCU	Telenor	Pott med Surf 149
344	SE	PROG	INCU	Telenor	Pott med Surf 299
345	SE	PROG	INCU	Telenor	Pott med Surf 399
346	SE	PROG	INCU	Telenor	FastPris Pott
347	SE	PROG	INCU	Telenor	4G Mini
348	SE	PROG	INCU	Telenor	4G Maxi
349	SE	PROG	INCU	Telenor	4G Premium
350	SE	PROG	INCU	Telenor	4G Premium+
351	SE	PROG	INCU	Telenor	Ipad Medium
352	SE	PROG	INCU	Telenor	Ipad Large
353	SE	PROG	INCU	Telenor	Ipad Extra Large
354	SE	PROG	CHAL	3	3MiniPlus + 3Vänner Plus
355	SE	PROG	CHAL	3	3MiniPlus + 3Vänner Plus + 3Mobilsurf Plus
356	SE	PROG	CHAL	3	3MiniPlus + 3Vänner Plus + 3Mobilsurf Max
357	SE	PROG	CHAL	3	3Bredband Surf
358	SE	PROG	CHAL	3	3Maxfart 3GB
359	SE	PROG	CHAL	3	3Bredband Medium
360	SE	PROG	CHAL	3	3Maxfart 30GB
361	SE	PROG	CHAL	3	3Maxfart Fri surf

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
362	DK	PROG	INCU	TDC	Pak selv
363	DK	PROG	INCU	TDC	Pak selv
364	DK	PROG	INCU	TDC	Pak selv
365	DK	PROG	INCU	TDC	Pak selv
366	DK	PROG	INCU	TDC	Pak selv
367	DK	PROG	INCU	TDC	Mobilpakker
368	DK	PROG	INCU	TDC	TDC Mobilt Bredbånd Mellem
369	DK	PROG	INCU	TDC	TDC Mobilt Bredbånd Stor
370	DK	PROG	INCU	TDC	TDC Mobilt Bredbånd Ekstra Stor
371	DK	PROG	INCU	Telenor	Lillenor
372	DK	PROG	INCU	Telenor	Vælg et mobilabonnement
373	DK	PROG	INCU	Telenor	Vælg et mobilabonnement
374	DK	PROG	INCU	Telenor	Vælg et mobilabonnement
375	DK	PROG	INCU	Telenor	Vælg et mobilabonnement
376	DK	PROG	INCU	Telenor	Vælg et mobilabonnement
377	DK	PROG	INCU	Telenor	Mobilt Bredbånd M
378	DK	PROG	INCU	Telenor	Mobilt Bredbånd L
379	DK	PROG	INCU	Telenor	Mobilt Bredbånd XL
380	DK	PROG	INCU	TeliaSonera	4SURE Light 3 timer
381	DK	PROG	INCU	TeliaSonera	4SURE Light Fri tale
382	DK	PROG	INCU	TeliaSonera	4SURE Premium
383	DK	PROG	INCU	TeliaSonera	4Everyhting light
384	DK	PROG	INCU	TeliaSonera	4Everyhting premium
385	DK	PROG	INCU	TeliaSonera	4LIFE Light
386	DK	PROG	INCU	TeliaSonera	4LIFE Full
387	DK	PROG	INCU	TeliaSonera	4LIFE Premium
388	DK	PROG	INCU	TeliaSonera	4LIFE Premium plus
389	DK	PROG	CHAL	3	3 FRI tale 1GB
390	DK	PROG	CHAL	3	4 FRI tale 5GB
391	DK	PROG	CHAL	3	5 FRI tale 10GB
392	DK	PROG	CHAL	3	6 FRI tale Fri Data
393	DK	PROG	CHAL	3	3Mobilt Bredbånd 1GB
394	DK	PROG	CHAL	3	3Mobilt Bredbånd 10GB
395	DK	PROG	CHAL	3	3Mobilt Bredbånd 40GB
396	DK	PROG	CHAL	3	3Mobilt Bredbånd 200GB
397	DK	PROG	CHAL	3	3Mobilt Bredbånd FRI DATA

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
398	DE	PROT	E4	Deutsche Telecom	Special Call & Surf Mobil
399	DE	PROT	E4	Deutsche Telecom	Special Complete Mobil XL
400	DE	PROT	E4	Deutsche Telecom	Complete Mobil L
401	DE	PROT	E4	Deutsche Telecom	Complete Mobil L + LTE option
402	DE	PROT	E4	Deutsche Telecom	Complete Mobil L + LTE option with 200mins
403	DE	PROT	E4	Deutsche Telecom	Complete Mobil XL
404	DE	PROT	E4	Deutsche Telecom	Complete Mobil XL + LTE option
405	DE	PROT	E4	Deutsche Telecom	Für Einsteiger
406	DE	PROT	E4	Deutsche Telecom	Für Viel-Surfer
407	DE	PROT	E4	Deutsche Telecom	Für Intensiv-Surfer
408	DE	PROT	E4	Vodafone	Red Basic 100
409	DE	PROT	E4	Vodafone	Super Flat Internet Basic with 100Mmins and high-speed volume to 200 MB
410	DE	PROT	E4	Vodafone	Super Flat Internet Basic with 100Mmins and high-speed volume to 1 GB
411	DE	PROT	E4	Vodafone	Red L
412	DE	PROT	E4	Vodafone	Red Premium
413	DE	PROT	E4	Vodafone	MobileInternet Flat 3,6 light
414	DE	PROT	E4	Vodafone	MobileInternet Flat 21,6
415	DE	PROT	E4	Vodafone	MobileInternet Flat 42,2
416	DE	PROT	E4	Vodafone	MobileInternet Flat 50,0
417	DE	PROT	E4	TelefonicaO2	Basic 300MB
418	DE	PROT	E4	TelefonicaO2	M
419	DE	PROT	E4	TelefonicaO2	L
420	DE	PROT	E4	TelefonicaO2	XL
421	DE	PROT	E4	TelefonicaO2	O2 Go + Surf Flat M
422	DE	PROT	E4	TelefonicaO2	O2 Go + Surf Flat L
423	DE	PROT	E4	TelefonicaO2	O2 Go + Surf Flat XL
424	DE	PROT	E4	TelefonicaO2	O2 Go + Surf Flat XXL
425	DE	PROT	INCU	KPN	Base Smart
426	DE	PROT	INCU	KPN	Base all-in
427	DE	PROT	INCU	KPN	Base all-in plus 2GB
428	DE	PROT	INCU	KPN	Base all-in plus 5GB
429	DE	PROT	INCU	KPN	Internet Flat XL Plus
430	DE	PROT	INCU	KPN	IFI XXL Plus

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
431	ES	PROT	E4	Telefonica O2	Contrato Movistar Cero
432	ES	PROT	E4	Telefonica O2	Contrato Movistar Cero + 1 GB extra de navegación
433	ES	PROT	E4	Telefonica O2	Movistar Total Contract
434	ES	PROT	E4	Telefonica O2	Movistar Total Contract 1 GB extra de navegación
435	ES	PROT	E4	Telefonica O2	Habla y Navega 75 + Tarifa Plana Internet 40
436	ES	PROT	E4	Telefonica O2	Tarifa Plana Internet 20
437	ES	PROT	E4	Telefonica O2	Tarifa Plana Internet 25
438	ES	PROT	E4	Telefonica O2	Tarifa Plana Internet 40
439	ES	PROT	E4	Vodafone	Base2
440	ES	PROT	E4	Vodafone	Base3
441	ES	PROT	E4	Vodafone	Red
442	ES	PROT	E4	Vodafone	Red3
443	ES	PROT	E4	Vodafone	Red5
444	ES	PROT	E4	Vodafone	Tarifa Internet Tablet 1GB
445	ES	PROT	E4	Vodafone	Tarifa Internet Móvil 2GB
446	ES	PROT	E4	Vodafone	Tarifa Internet Móvil 5GB
447	ES	PROT	E4	France Telecom	Dolphin 12 SIM
448	ES	PROT	E4	France Telecom	Ballena 22
449	ES	PROT	E4	France Telecom	Ballena 32
450	ES	PROT	E4	France Telecom	Dolphin 35 SIM
451	ES	PROT	E4	France Telecom	Dolphin 35 SIM + Bonos Internet Extra
452	ES	PROT	E4	France Telecom	Ballena 55
453	ES	PROT	E4	France Telecom	Ballena 55 with 1000mins and 4xTarifa Internet Plus
454	ES	PROT	E4	France Telecom	Internet Móvil 2GB
455	ES	PROT	E4	France Telecom	Internet Móvil 10GB
456	ES	PROT	E4	France Telecom	Internet Móvil 2GB
457	ES	PROT	E4	France Telecom	Internet Móvil 10GB
458	ES	PROT	INCU	TeliaSonera	LA MEGA PLANA 20
459	ES	PROT	INCU	TeliaSonera	LA MEGA PLANA 20 + BONO 9 INTERNET
460	ES	PROT	INCU	TeliaSonera	LA INFINITE 30 + BONO 9 INTERNET
461	ES	PROT	INCU	TeliaSonera	LA INFINITE 39 + BONO 9 INTERNET
462	ES	PROT	INCU	TeliaSonera	BONO 9 INTERNET

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
463	PL	PROG	E4	France Telecom	Smart Plan Multi Tylko Sim
464	PL	PROG	E4	France Telecom	Smart Plan Multi Tylko Sim
465	PL	PROG	E4	France Telecom	Smart Plan Multi Tylko Sim
466	PL	PROG	E4	France Telecom	Rozmowy bez limitu
467	PL	PROG	E4	France Telecom	Rozmowy bez limitu + 2GB for 19zl
468	PL	PROG	E4	France Telecom	Orange Free bez modemu
469	PL	PROG	E4	France Telecom	Orange Free bez modemu
470	PL	PROG	E4	France Telecom	Orange Free bez modemu
471	PL	PROG	E4	France Telecom	Orange Free bez modemu
472	PL	PROG	E4	France Telecom	Orange Free bez modemu
473	PL	PROG	CHAL	Polkomtel	Oferta "Oszczędzasz - Tylko SIM
474	PL	PROG	CHAL	Polkomtel	Oferta "Oszczędzasz - Tylko SIM + Pakiet internetowy 15 zł Non Stop
475	PL	PROG	CHAL	Polkomtel	Oferta "Oszczędzasz - Tylko SIM + Pakiet internetowy 15 zł Non Stop
476	PL	PROG	CHAL	Polkomtel	Oferta "Oszczędzasz - Tylko SIM + Pakiet internetowy 15 zł Non Stop
477	PL	PROG	CHAL	Polkomtel	Oferta "Oszczędzasz - Tylko SIM + Pakiet internetowy 15 zł Non Stop
478	PL	PROG	CHAL	Polkomtel	Oferta "Oszczędzasz - Tylko SIM + Pakiet internetowy 15 zł Non Stop with 1000mins
479	PL	PROG	CHAL	Polkomtel	Internet Mobilny - oferta bez modemu
480	PL	PROG	CHAL	Polkomtel	Internet Mobilny - oferta bez modemu
481	PL	PROG	CHAL	Polkomtel	Internet Mobilny - oferta bez modemu
482	PL	PROG	CHAL	Polkomtel	Internet Mobilny - oferta bez modemu
483	PL	PROG	CHAL	Polkomtel	Internet Mobilny - oferta bez modemu
484	PL	PROG	CHAL	Polkomtel	Internet Mobilny - oferta bez modemu
485	PL	PROG	CHAL	Polkomtel	Internet Mobilny - oferta bez modemu
486	PL	PROG	E4	Deutsche Telecom	Oferta bez telefonu + 100 MB
487	PL	PROG	E4	Deutsche Telecom	Oferta bez telefonu + 2GB
488	PL	PROG	E4	Deutsche Telecom	Oferta bez telefonu + 5GB
489	PL	PROG	E4	Deutsche Telecom	Oferta bez telefonu + 5GB
490	PL	PROG	E4	Deutsche Telecom	Oferta bez telefonu + 5GB
491	PL	PROG	E4	Deutsche Telecom	Blueconnect tylko SIM
492	PL	PROG	E4	Deutsche Telecom	Blueconnect tylko SIM
493	PL	PROG	CHAL	Play	FORMUŁA S za 29 zł
494	PL	PROG	CHAL	Play	FORMUŁA M za 49 zł
495	PL	PROG	CHAL	Play	FORMULA L for 59 zł
496	PL	PROG	CHAL	Play	FORMULA L for 99 zł
497	PL	PROG	CHAL	Play	FORMULA L for 99 zł + Pakiet 1,5 GB - 15 zł miesięcznie
498	PL	PROG	CHAL	Play	Nowy Play Online 4GB bez modemu za 29,90 zł
499	PL	PROG	CHAL	Play	Nowy Play Online 10GB bez modemu za 39,90 zł
500	PL	PROG	CHAL	Play	Nowy Play Online 4GB bez modemu za 49,90 zł
501	PL	PROG	CHAL	Play	Nowy Play Online 4GB bez modemu za 69,90 zł

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
502	BE	PROT	INCU	Belgacom	Smart+ 15
503	BE	PROT	INCU	Belgacom	Smart+ 25
504	BE	PROT	INCU	Belgacom	Smart+ 35
505	BE	PROT	INCU	Belgacom	Smart+ 65
506	BE	PROT	INCU	Belgacom	Mobile Internet Comfort
507	BE	PROT	INCU	Belgacom	Mobile Internet Favorite
508	BE	PROT	INCU	Belgacom	Mobile Internet Favorite for iPad
509	BE	PROT	E4	France Telecom	Dauphin 12
510	BE	PROT	E4	France Telecom	Dauphin 15
511	BE	PROT	E4	France Telecom	Panthère 28
512	BE	PROT	E4	France Telecom	Panthère 36
513	BE	PROT	E4	France Telecom	Panthère 60
514	BE	PROT	E4	France Telecom	Usage Régulier
515	BE	PROT	E4	France Telecom	Usage Intensif
516	BE	PROT	INCU	KPN	B-19
517	BE	PROT	INCU	KPN	B-29
518	BE	PROT	INCU	KPN	B-39
519	BE	PROT	INCU	KPN	B-49
520	BE	PROT	INCU	KPN	B-59
521	BE	PROT	INCU	KPN	internet anywhere 10
522	BE	PROT	INCU	KPN	internet anywhere 15
523	BE	PROT	INCU	KPN	internet anywhere 30

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
524	MT	PROT	E4	Vodafone	Smartphone 35 and 50mins and 20 SMSs
525	MT	PROT	E4	Vodafone	Smartphone 55
526	MT	PROT	E4	Vodafone	Red
527	MT	PROT	E4	Vodafone	Red Premium
528	MT	PROT	E4	Vodafone	Red Premium + 1GB
529	MT	PROT	E4	Vodafone	Liberty Lite Data bundle: 2GB
530	MT	PROT	E4	Vodafone	Liberty Plus Data bundle: 5GB
531	MT	PROT	E4	Vodafone	Liberty Max Data bundle: 12GB
532	MT	PROT	INCU	GO	Pay monthly 15 with 500MB and 50mins extra
533	MT	PROT	INCU	GO	Pay monthly 15 with 1GB and 50mins extra
534	MT	PROT	INCU	GO	Limiteless 60
535	MT	PROT	INCU	GO	Limiteless 99
536	MT	PROT	INCU	GO	5GB
537	MT	PROT	INCU	GO	12GB
538	MT	PROT	INCU	Melita	Medium Pay Monthly with 3GB and 40mins extra
539	MT	PROT	INCU	Melita	Extra Large Pay Monthly with 3GB
540	MT	PROT	INCU	Melita	Unlimited XXL
541	MT	PROT	INCU	Melita	Unlimited XXL and 3 times 350MB
542	MT	PROT	INCU	Melita	Melita Connector Price Plan
543	CY	PROT	INCU	Cyprus Telecom	Make your own
544	CY	PROT	INCU	Cyprus Telecom	Make your own
545	CY	PROT	INCU	Cyprus Telecom	Make your own
546	CY	PROT	INCU	Cyprus Telecom	Make your own
547	CY	PROT	INCU	Cyprus Telecom	Make your own
548	CY	PROT	INCU	Cyprus Telecom	Make your own
549	CY	PROT	INCU	Cyprus Telecom	VODAFONE MOBILE BROADBAND PAY MONTHLY
550	CY	PROT	INCU	Cyprus Telecom	VODAFONE MOBILE BROADBAND PAY MONTHLY
551	CY	PROT	INCU	Cyprus Telecom	VODAFONE MOBILE BROADBAND PAY MONTHLY
552	CY	PROT	INCU	Cyprus Telecom	VODAFONE MOBILE BROADBAND PAY MONTHLY
553	CY	PROT	INCU	Cyprus Telecom	VODAFONE MOBILE BROADBAND PAY MONTHLY
554	CY	PROT	INCU	MTN	MTN 140 + MTN Mobile Internet 250MB
555	CY	PROT	INCU	MTN	MTN 140 + MTN Mobile Internet 500MB
556	CY	PROT	INCU	MTN	MTN 140 + MTN Mobile Internet 1GB
557	CY	PROT	INCU	MTN	MTN 350 + MTN Mobile Internet 2.5GB
558	CY	PROT	INCU	MTN	MTN 600 + MTN Mobile Internet 5GB
559	CY	PROT	INCU	MTN	MTN 900 + MTN Mobile Internet 5GB and 100mins
560	CY	PROT	INCU	MTN	MTN Mobile Broadband 1GB
561	CY	PROT	INCU	MTN	MTN Mobile Broadband 2.5GB
562	CY	PROT	INCU	MTN	MTN Mobile Broadband 5GB
563	CY	PROT	INCU	MTN	MTN Mobile Internet 25GB
564	CY	PROT	INCU	MTN	MTN Mobile Broadband Unlimited*

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
565	RO	PROG	E4	France Telecom	Cangur 9
566	RO	PROG	E4	France Telecom	Cangur 18 and 50MB option and 75 mins option to national networks
567	RO	PROG	E4	France Telecom	Panteră 23
568	RO	PROG	E4	France Telecom	Panteră 23 and 20 times 50MB = 1GB extra
569	RO	PROG	E4	France Telecom	Panteră 39 and 1GB option
570	RO	PROG	E4	France Telecom	Panteră 49 and 1GB option and 75mins option to national networks
571	RO	PROG	E4	France Telecom	Panteră 49 and 1GB option and 75mins option to national networks and 425mins
572	RO	PROG	E4	France Telecom	abonamentul Colibri 8
573	RO	PROG	E4	France Telecom	abonamentul Colibri 10
574	RO	PROG	E4	France Telecom	abonamentul Colibri 13
575	RO	PROG	E4	France Telecom	abonamentul Colibri 15
576	RO	PROG	E4	France Telecom	abonamentul Colibri 25
577	RO	PROG	E4	Vodafone	Mega 8 Plus
578	RO	PROG	E4	Vodafone	Red 25
579	RO	PROG	E4	Vodafone	Mega 25 and 1GB internet option
580	RO	PROG	E4	Vodafone	Red 35
581	RO	PROG	E4	Vodafone	Red 50
582	RO	PROG	E4	Vodafone	Standard
583	RO	PROG	E4	Vodafone	Plus
584	RO	PROG	E4	Vodafone	Extra
585	RO	PROG	E4	Vodafone	Turbo 75
586	RO	PROG	E4	Vodafone	Turbo 100
587	RO	PROG	E4	Deutsche Telecom	Cosmote S data+
588	RO	PROG	E4	Deutsche Telecom	COSMOTE All Free 600 and Connect Mobile S+
589	RO	PROG	E4	Deutsche Telecom	Cosmote S data+ and Connect Mobile L+
590	RO	PROG	E4	Deutsche Telecom	COSMOTE All Free 600 and Connect Mobile L+
591	RO	PROG	E4	Deutsche Telecom	COSMOTE All Free 1000 and Connect Mobile L+
592	RO	PROG	E4	Deutsche Telecom	COSMOTE All Free 1000 and Connect Mobile XL+
593	RO	PROG	E4	Deutsche Telecom	Connect XS
594	RO	PROG	E4	Deutsche Telecom	Connect S
595	RO	PROG	E4	Deutsche Telecom	Connect M
596	RO	PROG	E4	Deutsche Telecom	Connect L
597	RO	PROG	E4	Deutsche Telecom	Connect XL
598	RO	PROG	E4	Deutsche Telecom	Connect XXL
599	RO	PROG	CHAL	RCS-RDS	DIGI MOBIL PLUS and Digi Net Mobil Smartphone Special
600	RO	PROG	CHAL	RCS-RDS	DIGI MOBIL PLUS and Digi Net Mobil Smartphone Special
601	RO	PROG	CHAL	RCS-RDS	DIGI MOBIL PLUS and Digi Net Mobil Smartphone Special
602	RO	PROG	CHAL	RCS-RDS	DIGI MOBIL PLUS and Digi Net Mobil Smartphone Special
603	RO	PROG	CHAL	RCS-RDS	DIGI MOBIL PLUS and Digi Net Mobil Smartphone Special
604	RO	PROG	CHAL	RCS-RDS	DIGI MOBIL PLUS and Digi Net Mobil Smartphone Special
605	RO	PROG	CHAL	RCS-RDS	Standard
606	RO	PROG	CHAL	RCS-RDS	Standard Plus

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
607	LU	PROT	INCU	PT Luxemburg	Basic and Budget
608	LU	PROT	INCU	PT Luxemburg	Basic and Power
609	LU	PROT	INCU	PT Luxemburg	Basic and Ultra
610	LU	PROT	INCU	PT Luxemburg	Relax and Ultra
611	LU	PROT	INCU	PT Luxemburg	Relax and Ultra +
612	LU	PROT	INCU	PT Luxemburg	iPadS
613	LU	PROT	INCU	PT Luxemburg	iPadL
614	LU	PROT	INCU	PT Luxemburg	Ultra
615	LU	PROT	INCU	PT Luxemburg	Ultra+
616	LU	PROT	E4	France Telecom	Basic and Internet Everywhere Medium
617	LU	PROT	E4	France Telecom	Basic and Internet Everywhere Large
618	LU	PROT	E4	France Telecom	Hello Europe Surf and 80mins extra
619	LU	PROT	E4	France Telecom	Hello Europe Surf Flat
620	LU	PROT	E4	France Telecom	Hello Europe Flat and Internet Everywhere Unlimited
621	LU	PROT	E4	France Telecom	iPad data unlimited
622	LU	PROT	E4	France Telecom	Large
623	LU	PROT	E4	France Telecom	Unlimited
624	LU	PROT	E4	France Telecom	4G
625	LU	PROT	INCU	Belgacom	Tango Easy Total and Tango Internet Mobile S
626	LU	PROT	INCU	Belgacom	Tango Easy Total and Tango Internet Mobile L
627	LU	PROT	INCU	Belgacom	Tango Smart 45
628	LU	PROT	INCU	Belgacom	iPad XL
629	LU	PROT	INCU	Belgacom	Tango Internet Mobile L
630	LU	PROT	INCU	Belgacom	Tango Internet Mobile XL
631	LU	PROT	INCU	Belgacom	Tango Internet Mobile 4G XL
632	PT	PROT	INCU	PT Telecom	All net UNLIMITED 15
633	PT	PROT	INCU	PT Telecom	All net UNLIMITED 30
634	PT	PROT	INCU	PT Telecom	All net UNLIMITED 60
635	PT	PROT	INCU	PT Telecom	Unlimited XL
636	PT	PROT	INCU	PT Telecom	Soft Tablet
637	PT	PROT	INCU	PT Telecom	Regular Tablet
638	PT	PROT	INCU	PT Telecom	Soft
639	PT	PROT	INCU	PT Telecom	Regular
640	PT	PROT	INCU	PT Telecom	Plus
641	PT	PROT	INCU	PT Telecom	Hiper4G
642	PT	PROT	INCU	PT Telecom	Mega4G
643	PT	PROT	E4	Vodafone	Base
644	PT	PROT	E4	Vodafone	Base and 4 x 200MB for €2.99
645	PT	PROT	E4	Vodafone	RedTop
646	PT	PROT	E4	Vodafone	Tablet Light
647	PT	PROT	E4	Vodafone	Tablet Plus
648	PT	PROT	E4	Vodafone	Tablet Max
649	PT	PROT	E4	Vodafone	3G Light
650	PT	PROT	E4	Vodafone	3G Plus
651	PT	PROT	E4	Vodafone	3G Max
652	PT	PROT	E4	Vodafone	3G Top
653	PT	PROT	E4	Vodafone	4G 50
654	PT	PROT	E4	Vodafone	4G 100
655	PT	PROT	E4	Vodafone	4G 150
656	PT	PROT	E4	France Telecom	Smart
657	PT	PROT	E4	France Telecom	Smart
658	PT	PROT	E4	France Telecom	Smart and 1GB option
659	PT	PROT	E4	France Telecom	Smart and 1GB option 4x300MB
660	PT	PROT	E4	France Telecom	Smart and 1GB option 7x300MB
661	PT	PROT	E4	France Telecom	Basic
662	PT	PROT	E4	France Telecom	Light
663	PT	PROT	E4	France Telecom	Xpress
664	PT	PROT	E4	France Telecom	Xpress Unlimited
665	PT	PROT	E4	France Telecom	4G 50
666	PT	PROT	E4	France Telecom	4G 100

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
668	LV	PROG	INCU	TeliaSonera	Briviba
669	LV	PROG	INCU	TeliaSonera	Briviba
670	LV	PROG	INCU	TeliaSonera	Briviba
671	LV	PROG	INCU	TeliaSonera	INTERNETS DATORĀ 5
672	LV	PROG	INCU	TeliaSonera	INTERNETS DATORĀ 7
673	LV	PROG	INCU	TeliaSonera	INTERNETS DATORĀ 12
674	LV	PROG	INCU	TeliaSonera	INTERNETS DATORĀ 19
675	LV	PROG	CHAL	Tele2	Nr.5 atceļam limitus!
676	LV	PROG	CHAL	Tele2	Zelts
677	LV	PROG	CHAL	Tele2	Nr.5 atceļam limitus! and 10GB
678	LV	PROG	CHAL	Tele2	Ekonomiskais
679	LV	PROG	CHAL	Tele2	Klasiskais
680	LV	PROG	CHAL	Tele2	Turbo
681	LV	PROG	CHAL	Bite	Bite 3.47
682	LV	PROG	CHAL	Bite	Bite 3.47 and Internets telefonā 500
683	LV	PROG	CHAL	Bite	Bite 3.47 and Internets telefonā 2000
684	LV	PROG	CHAL	Bite	Bite 5.55 and Internets telefonā 2000
685	LV	PROG	CHAL	Bite	Bite 5.55 and Internets telefonā 10000
686	LV	PROG	CHAL	Bite	START
687	LV	PROG	CHAL	Bite	MINI
688	LV	PROG	CHAL	Bite	STANDARD
689	LV	PROG	CHAL	Bite	PRO
690	LT	PROG	INCU	TeliaSonera	Susikurkite planą patys
691	LT	PROG	INCU	TeliaSonera	Susikurkite planą patys
692	LT	PROG	INCU	TeliaSonera	Susikurkite planą patys
693	LT	PROG	INCU	TeliaSonera	Susikurkite planą patys
694	LT	PROG	INCU	TeliaSonera	Susikurkite planą patys
695	LT	PROG	INCU	TeliaSonera	Mobiliojo interneto planai kompiuteryje
696	LT	PROG	INCU	TeliaSonera	Mobiliojo interneto planai kompiuteryje
697	LT	PROG	INCU	TeliaSonera	Mobiliojo interneto planai kompiuteryje
698	LT	PROG	INCU	TeliaSonera	Mobiliojo interneto planai kompiuteryje
699	LT	PROG	CHAL	Tele2	Planas 100
700	LT	PROG	CHAL	Tele2	Planas 300
701	LT	PROG	CHAL	Tele2	Planas 300
702	LT	PROG	CHAL	Tele2	Planas 500
703	LT	PROG	CHAL	Tele2	Planas 1000
704	LT	PROG	CHAL	Tele2	Mobile Internet S (without modem)
705	LT	PROG	CHAL	Tele2	Mobile Internet M (without modem)
706	LT	PROG	CHAL	Tele2	Mobile Internet L (without modem)
707	LT	PROG	CHAL	Bite	Kartais and Internetas 200
708	LT	PROG	CHAL	Bite	Kartais and Internetas 500
709	LT	PROG	CHAL	Bite	Kartais and Internetas 500 and 500MB for 0.01LT/MB
710	LT	PROG	CHAL	Bite	Vidutiniškai and Internetas 500 and 1500MB for 0.01LT/MB
711	LT	PROG	CHAL	Bite	Dažnai and Internetas 500 and 2500MB for 0.01LT/MB
712	LT	PROG	CHAL	Bite	Visada and Internetas 500 and 3500MB for 0.01LT/MB
713	LT	PROG	CHAL	Bite	GO
714	LT	PROG	CHAL	Bite	STANDARD
715	LT	PROG	CHAL	Bite	NO LIMIT

Numbering	Member State identifier	Market identifier	Group identifier	MNO name	Tariff name
716	BG	PROT	INCU	Telekom Austria	Мтел моби S and Мтел сърф S
717	BG	PROT	INCU	Telekom Austria	Мтел смарт 1
718	BG	PROT	INCU	Telekom Austria	Мтел смарт 2 and Мтел сърф M
719	BG	PROT	INCU	Telekom Austria	Мтел смарт 3
720	BG	PROT	INCU	Telekom Austria	Мтел смарт 3 and Мтел сърф L
721	BG	PROT	INCU	Telekom Austria	Мтел мобилен интернет M
722	BG	PROT	INCU	Telekom Austria	Мтел мобилен интернет M
723	BG	PROT	INCU	Telekom Austria	Мтел мобилен интернет M
724	BG	PROT	E4	Deutsche Telecom	Globul Web & Talk
725	BG	PROT	E4	Deutsche Telecom	GLOBUL UNIVERSE and Неограничен мобилен интернет, 1000 MB
726	BG	PROT	E4	Deutsche Telecom	GLOBUL UNIVERSE and Неограничен мобилен интернет, 2500 MB
727	BG	PROT	E4	Deutsche Telecom	Globul Web & Talk and Неограничен мобилен интернет, 2500 MB
728	BG	PROT	E4	Deutsche Telecom	Globul Web & Talk and Неограничен мобилен интернет, 2500 MB
729	BG	PROT	E4	Deutsche Telecom	GLOBUL GOWEB UNLIMITED
730	BG	PROT	E4	Deutsche Telecom	GLOBUL GOWEB UNLIMITED
731	BG	PROT	E4	Deutsche Telecom	GLOBUL GOWEB UNLIMITED
732	BG	PROT	E4	Deutsche Telecom	GLOBUL GOWEB UNLIMITED
733	BG	PROT	INCU	Bulgaria Telecom	MegaCallS and +DATA Unlimited M
734	BG	PROT	INCU	Bulgaria Telecom	MegaCallS and +DATA Unlimited L
735	BG	PROT	INCU	Bulgaria Telecom	MegaCallS and +DATA Unlimited XL
736	BG	PROT	INCU	Bulgaria Telecom	Net&Call Top and 170mins extra and +DATA Unlimited L
737	BG	PROT	INCU	Bulgaria Telecom	Net&Call Max and 440mins extra and +DATA Unlimited L
738	BG	PROT	INCU	Bulgaria Telecom	Net&Call Max and 910mins extra
739	BG	PROT	INCU	Bulgaria Telecom	Traffic Unlimited S
740	BG	PROT	INCU	Bulgaria Telecom	Traffic Unlimited M
741	BG	PROT	INCU	Bulgaria Telecom	Traffic Unlimited L
742	BG	PROT	INCU	Bulgaria Telecom	Traffic Unlimited XL
743	SI	PROG	INCU	Telecom Slovenia	Povezani 400
744	SI	PROG	INCU	Telecom Slovenia	Povezani 2000
745	SI	PROG	INCU	Telecom Slovenia	Povezani 2000 and Mobilni Internet 1 GB
746	SI	PROG	INCU	Telecom Slovenia	Povezani 2000 and Mobilni Internet 2 GB
747	SI	PROG	INCU	Telecom Slovenia	Povezani 2000 and Mobilni Internet 5 GB
748	SI	PROG	INCU	Telecom Slovenia	Povezani 2000 and Mobilni Internet 15GB
749	SI	PROG	INCU	Telecom Slovenia	Internet mini
750	SI	PROG	INCU	Telecom Slovenia	Internet start
751	SI	PROG	INCU	Telecom Slovenia	Internet neomejeno
752	SI	PROG	INCU	Telecom Slovenia	Internet LTE/4G
753	SI	PROG	INCU	Telekom Austria	Packet 9
754	SI	PROG	INCU	Telekom Austria	Packet 9 and Maxi Plus
755	SI	PROG	INCU	Telekom Austria	Mobilni internet S
756	SI	PROG	INCU	Telekom Austria	Mobilni internet M
757	SI	PROG	INCU	Telekom Austria	Mobilni internet L
758	SI	PROG	CHAL	Tusmobil	paket Najbližji
759	SI	PROG	CHAL	Tusmobil	Dodatni naročniški paket tušmobil10+ and Dodatni naročniški paket tušmobil1GB*
760	SI	PROG	CHAL	Tusmobil	Free 20
761	SI	PROG	CHAL	Tusmobil	Free 40
762	SI	PROG	CHAL	Tusmobil	Mesečna naročnina do 1GB
763	SI	PROG	CHAL	Tusmobil	Mesečna naročnina od 1GB dalje (neomejeno*)
764	SI	PROG	CHAL	T2	S
765	SI	PROG	CHAL	T2	M
766	SI	PROG	CHAL	T2	L
767	SI	PROG	CHAL	T2	XL
768	SI	PROG	CHAL	T2	XXL
769	SI	PROG	CHAL	T2	Podatkvoni L
770	SI	PROG	CHAL	T2	Podatkvoni M
771	SI	PROG	CHAL	T2	Podatkvoni S

About Rewheel

Rewheel is an independent strategic advisory specializing in data-centric transformation of mobile operators and markets.

We are headquartered in Helsinki, Finland and our main operating footprint is Europe.

Since 2009 we have advised over 10 European mobile operators, including independent challengers as well as Tier-1 OpCos, regulators, competition authorities, a number of private equity and institutional investors and various mobile-data centric start-ups.

Since the onset of the mobile broadband centric 900, 1800 and 2100 MHz license renewal avalanche in 2011 in Europe we have been providing strategy, spectrum valuation and auction theory advice (together with our world class CCA/SMRA auction theorist partners) to five European spectrum authorisation processes (operator or regulator side depending on country), including new entrants and acquisitions as well as license renewals in multi-band (typically 800, 900, 1800, 2100 and 2600 MHz) auctions.

Our advisors' knowledge, experience and insights cover all important aspects of successful data-centric mobile operator business models. Our typical advisory engagements are:

- Mobile-data centric operator business planning end-to-end
- Mobile data pricing strategies
- 3G/LTE mobile infrastructure development strategy and investment planning
- 3G/LTE mobile infrastructure procurement strategy, network infrastructure cost structure competitiveness benchmarking and optimisation (Rewheel is truly network vendor independent)
- Spectrum acquisition strategy and NPV valuation
- Industry expert advisory to policy makers, regulators and competition authorities

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